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DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

THE AUTOMATIC HEAT Section will be found on Page 63

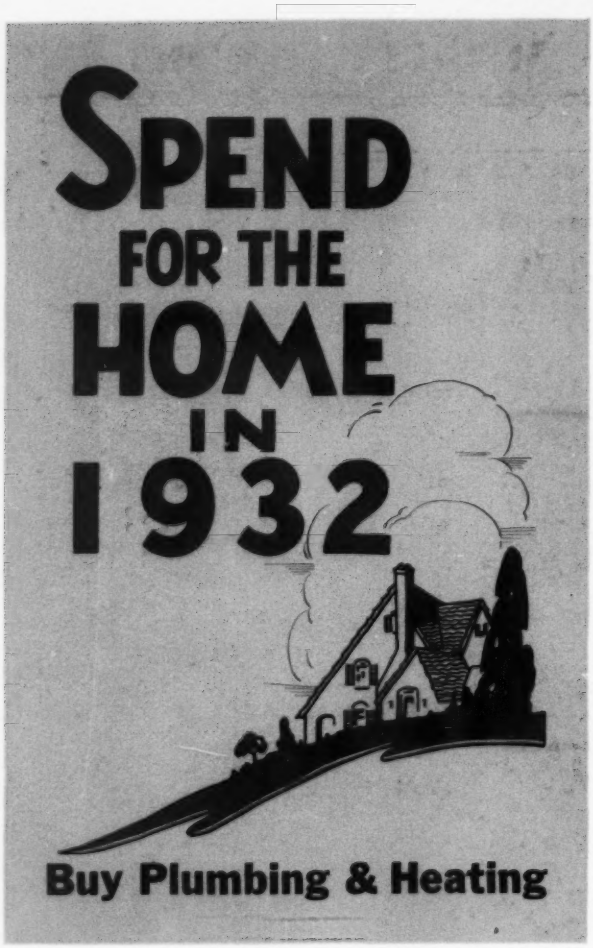
JAN.
23,
1932

Home Air Conditioning—Its Problems and Possibilities

How Ice Is Used in Space Cooling

Home Cooling and the Domestic Engineer

Joint Program of A. S. H. V. E. and A. S. R. E. Meeting



Window Cards, Stickers, Electrotypes

READY NOW!

●

DOMESTIC ENGINEERING'S new promotional campaign for the building and home industries is penetrating every division of the field. Lumber dealers, building contractors, furniture stores and, in fact, every one interested in the home is being urged to "get on the band wagon" for this big drive in 1932.

●

DOMESTIC ENGINEERING is making it convenient for you, at as small an expense as possible, to get off to the leading start with window cards, stickers, advertising suggestions and electrotypes of the slogan.

Window cards exactly like the illustration above except that they are 8¼ in. by 12 in., about the size of this page, are ready for distribution. Get a supply of these cards at once. Use them at every opportunity—in your windows, door, show room, on your truck, your private automobile, anywhere where they can be seen.

The prices of these cards are as follows:

10 cards for 50 cents
25 cards for 75 cents
50 cards for $1.25
100 cards for 2.00
500 cards for 9.00
1000 cards for 17.00

We cannot undertake to ship less than 10 of these cards.

Stickers of the slogan, in the same design as shown above but of 1¼ in. x 2 in. proportions are also available. Order these stickers. Use them on your letterheads, envelopes, billheads, business cards, etc., etc.

The prices of the stickers are as follows:

1000 stickers for $1.50
2000 stickers for 2.50
5000 stickers for 5.00

Get a supply of cards and stickers now.

Electrotypes of various sized cuts of the slogan are also available. These can be had for one and two-color printing. Electrotypes are priced as follows:

Electro for one-color printing, 1½x2⅜ in.	$0.35
Electro for two-color printing, 1½x2⅜ in.	.65
Electro for one-color printing, 3½x5½ in.	.55
Electro for two-color printing, 3½x5½ in.	1.00
Electro for one-color printing, size approximately 8x12 in.	2.50
Electro for two-color printing, size approximately 8x12 in.	4.50

Order what you need to get in on this big drive now. Read the editorial pages of this issue for more details.

DOMESTIC ENGINEERING, 1900 PRAIRIE AVE., CHICAGO

FACTS LIKE THESE ARE MIGHTY IMPORTANT

● VOGEL NUMBER TEN-A ●
SEAT-ACTION CLOSET

. . . now that your customers are looking for the most economical installation they can buy . . .

1 The Vogel Number Ten Closet on the Endurance Test has flushed more than 400,000 times, *and only a single washer had to be renewed.*

2 Vogel Number Ten and Ten-A Closets give a thorough flush on 4 gallons of water — saving a gallon every time.

3 There are no floats to stick or get out of order — the flush on Vogel Closets being a combination of air and water pressure.

4 Vogel Closets are made by a concern specializing in the manufacture of seat-action closets for twenty-five years.

Place these facts before your customers, with folders and blotters imprinted with your name and address. Let us know how many you need and we will send them promptly.

JOSEPH A. VOGEL CO.
Wilmington, Del. St. Louis, Mo.

VOGEL PATENTED *Products*

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

Established 1889

Vol. 138, No. 2 | January 23, 1932 | Whole No. 1961

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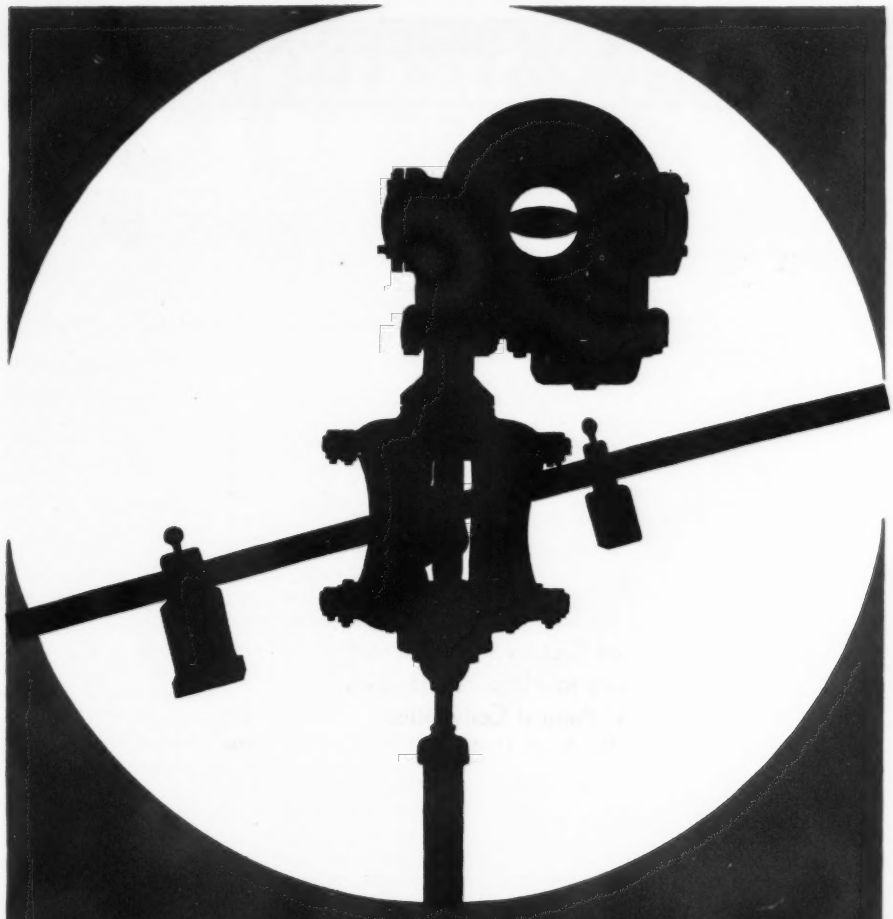


"The simplest steam heat control I have ever seen"

Look over the new Webster HYLO Steam Variator Control at Booth 252 and see if you do not agree with the engineer who made this comment. The Webster HYLO Steam Variator is one of a complete line of central Webster steam heat controls for use with Improved Webster Systems, the truly *controllable* systems.

Prepare to spend plenty of time at the Webster exhibit. You will need it to see the numerous developments of this pioneer organization!

IMPROVED

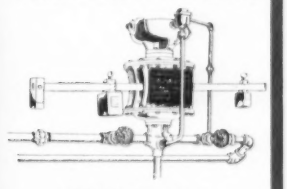
Webster

Systems of Steam Heating

WARREN WEBSTER & CO., Camden, New Jersey

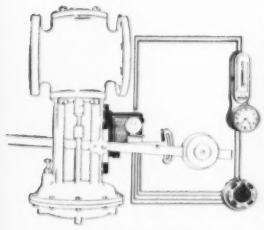
ROOF THERMOSTAT

Provides the true "Control-by-the-Weather" feature of Webster Moderator Control.



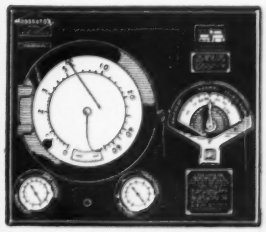
WEBSTER HYLO VACUUM VARIATOR

Another simple central control. Used with Improved Webster Vacuum Systems.



ZONE CONTROL

Supplementary Zone Control may be included with any type of Webster Central Control—Hylo or Moderator.



VARIATOR CONTROL PANEL

One of several types of control panels used with Improved Webster Systems.

See the complete display of Webster Central Controls and Improved Webster Systems at Cleveland, January 25-29, 1932.

Between Ourselves

IN THIS issue is definite announcement of the material that has been prepared for use by plumbing and heating dealers in connection with the "Spend for the Home in 1932" movement with complete information regarding posters, stickers, electrotypes, etc. The two Retail Advertising pages are given over completely to the campaign, with sales letters, ads and publicity items for use by plumbing and heating dealers.

Your Editor

DURING the coming week, heating ventilating and refrigerating engineers from all sections of the country will gather in Cleveland, Ohio, for the joint meeting of the American Society of Heating and Ventilating Engineers and the American Society of Refrigerating Engineers. The second International Heating and Ventilating Exposition, to be held in connection with the meeting, offers visitors an opportunity to inspect the newest products of manufacturers. Lower prices put these products within reach of more people, and the "Spend for the Home in 1932" campaign is going to play a prominent part in bringing them to spend their money in this way.

AN interesting article in this issue is the one on Page 20 by Henry R. Sewell entitled, "Home Air Conditioning — Its Problems and Possibilities." Mr. Stevens' article deals with the fundamentals of air conditioning installations in residences and the subject matter is applicable to both large and small jobs. It is illustrated with a number of photographs of an installation in a large Chicago residence that indicate the problems encountered on such a job as well as the possibilities that have so far been developed.

IN THE Plumbing and Heating Merchandising section in this issue will be found newspaper advertisements and an explanation of "Competitive Merchandising" as practiced by a successful plumbing and heating contracting firm which is meeting outside competition aggressively. In its newspaper advertising this firm gives the price for the merchandise that is being advertised—and the price is shown prominently so that it can not be overlooked. This has made it possible for this concern to meet competition from outside sources with a great deal of success.

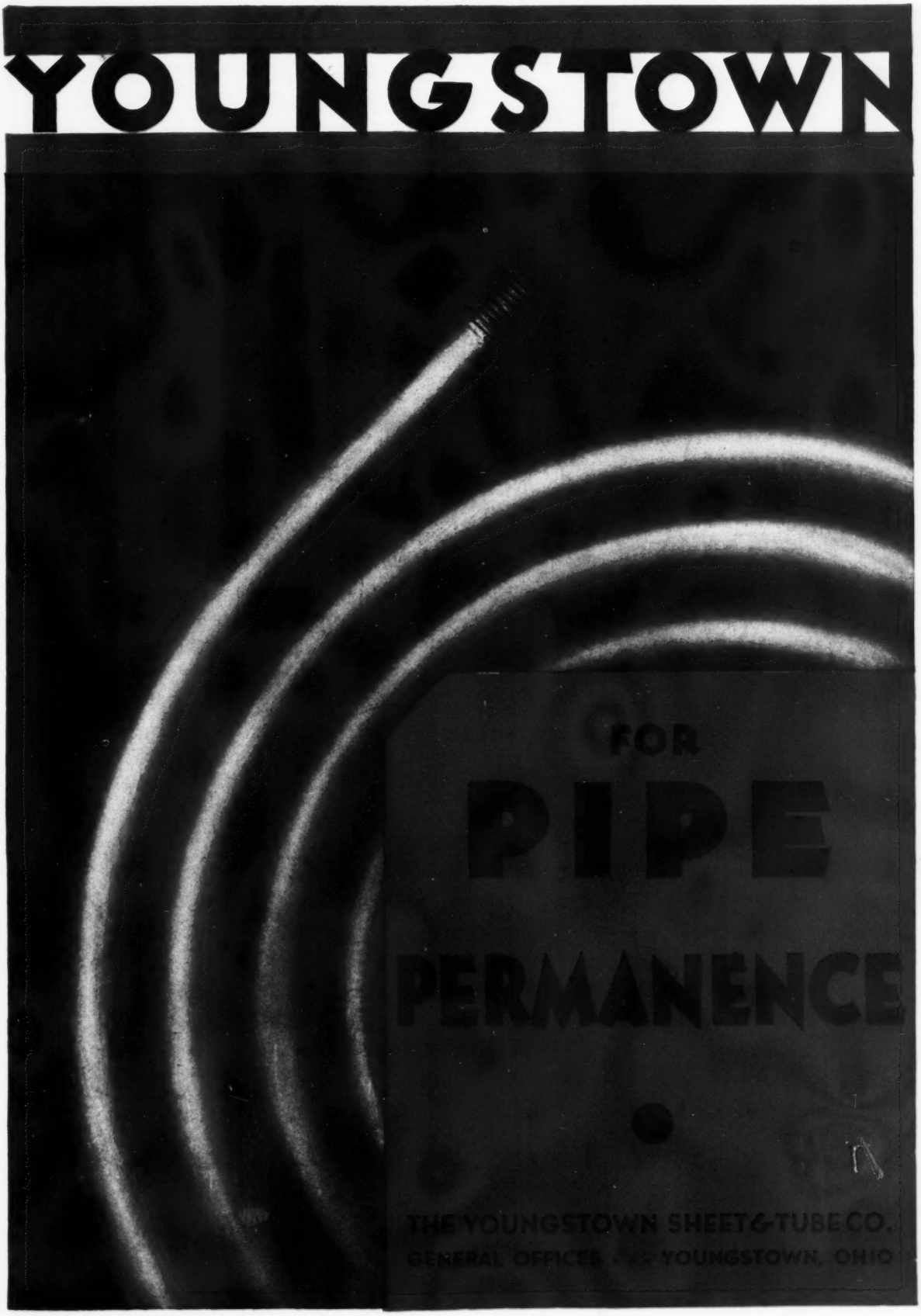
"RECENTLY I asked you to give me some advice on hot water heating coils. Your reply was indeed to the point and of much value to me, and I wish to thank you very much for it."—C. J. Gossman, Britt, Ia.

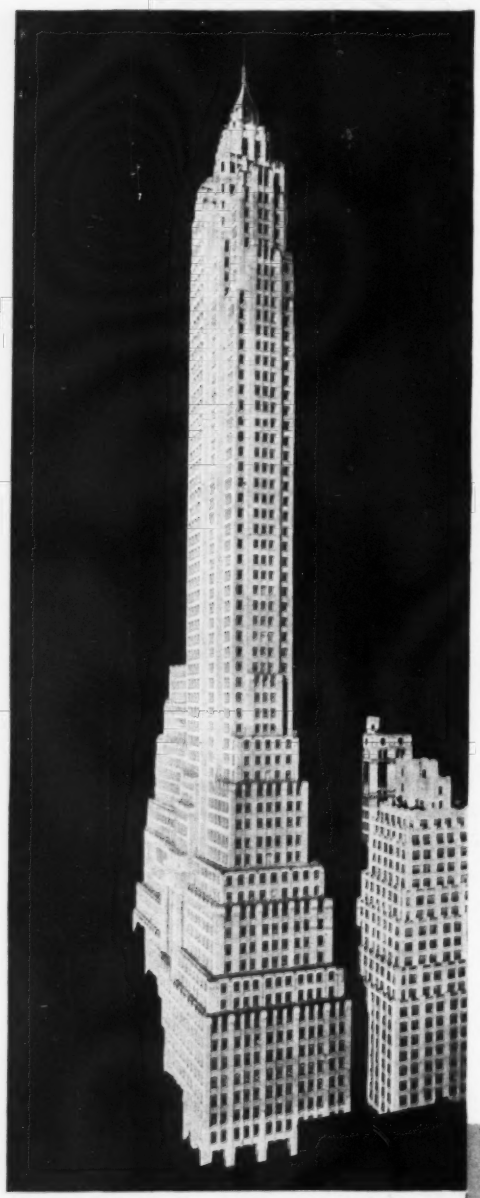
THE AUTOMATIC HEAT section this time contains an excellent selection of articles on technical and selling matters for the heating contractor-dealer. One article describes a dealer's success in conducting a home heating week, and another deals with the use of the conversion burner in residential heating. A third article tells how one contractor checks the requirements of gas heating installations, and another one discusses pounding in piping. The fifth article describes the methods employed by a heating contractor-dealer who is making a success of selling oil burners.

IN ADDITION to those already mentioned, this issue contains many other articles dealing with various phases of air conditioning. One of these discusses the spraying and melting of ice for air cooling systems. The titles of some of the other articles, which follow, will give you a general idea of the subjects covered: "How Ice Is Used for Space Cooling"; "Home Air Conditioning—Its Problems and Possibilities"; "How to Figure Cooling Capacities"; and "Fundamentals of Air Conditioning."

"A CLEVER Remodeling Job" is the title of an article in this issue by A. J. Parks describing the transforming of a twelve room house into a home having twenty rooms, a sun room and seven bath rooms. A modern radiator heating system was installed in place of the original hot air system. Interesting plumbing problems were encountered in remodeling this old residence. The old fixtures removed included wooden laundry trays and copper lined bath tubs.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe.


YOUNGSTOWN
FOR
PIPE
PERMANENCE
THE YOUNGSTOWN SHEET & TUBE CO.
GENERAL OFFICES - - YOUNGSTOWN, OHIO



CITIES SERVICE BUILDING, NEW YORK CITY
Clinton & Russel, Architects; James Stewart & Co., Inc., Gen'l. Contractors; Riggs-Distler Co., Inc., Heating Contractors; James McCullagh, Inc., Plumbing Contractors.
"SQUARE 'GEE' PRODUCTS THROUGHOUT"

How...

CITIES SERVICE *solved this* FITTINGS PROBLEM

THE men who built the towering **CITIES SERVICE BUILDING** in New York took no chances on fittings. They knew that Square "Gee" stood for uniform dependability . . . **ALWAYS.** They solved **ALL** their fittings problems by specifying Square "Gees" straight down the line . . . on malleables, drainage fittings, cast iron steam fittings, expansion joint test tees, brass fittings and pipe hangers. You will find profit in following **CITIES SERVICE'** example; in saying Square "Gee" on every fitting or hanger order. Uniform dependability, made certain by advanced manufacturing methods and triple inspection, is your assurance of faster work, lower costs, better installations.

THE GRABLER MANUFACTURING COMPANY
6565 BROADWAY :: CLEVELAND, OHIO
Warehouses: NEW YORK · CHICAGO · LOS ANGELES · SAN FRANCISCO

THE SQUARE "GEE" LINE INCLUDES: Standard and Extra Heavy Malleable Fittings . . . Standard and Ground Joint Unions . . . Rail Fittings . . . Standard Cast Iron Steam Fittings . . . Standard and Patented Cast Iron Drainage Fittings . . . Standard and Extra Heavy Brass Fittings . . . Brass Unions . . . Steel and Brass Nipples . . . Hangers . . . Floor and Ceiling Plates.

SQUARE Pipe

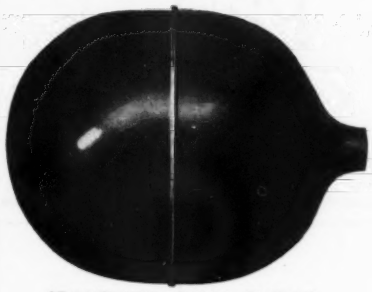
"GEE" Fittings

MALLEABLE, CAST IRON

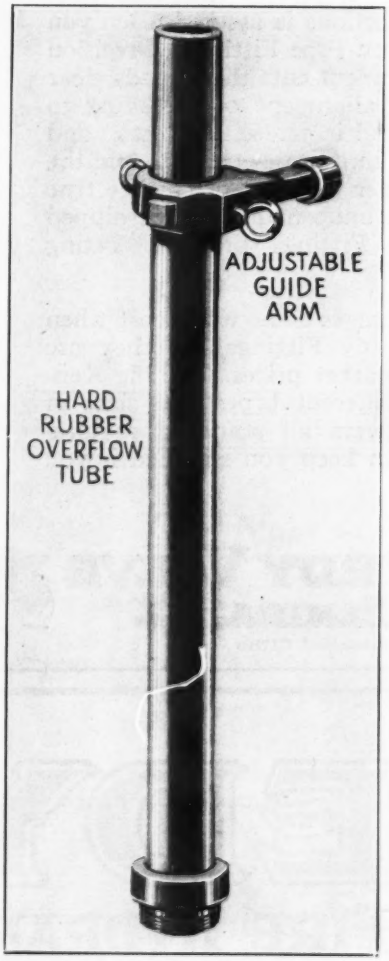
DRAINAGE, BRASS

YOUR FITTING PROBLEM IS SOLVED WHEN YOU SAY SQUARE "GEES"

STANDARD ROUND FLOAT



STANDARD OVAL FLOAT



If you will begin in JANUARY to sell

STOKES HARD RUBBER FLOATS

Mark of Quality

— — you will improve your business by handling fittings which are the last word in design and operation.

You will be able to offer your customers a superior material for under-water use. Metals are apt to rust or corrode. Hard rubber will do neither. It will not turn green nor grow mouldy.

And if you handle STOKES Hard Rubber products at present prices YOU CAN MAKE A PROFIT.

THE STOKES HARD RUBBER ADJUSTABLE GUIDE ARM and Overflow Tube with Reducing Bushing

— — is the most modern and improved device of the kind on the market. The arm can be swung about the tube to any desired angle, and at the same time moved in or out, making it easy to form a connection with the tank ball. No other type guide arm can be adjusted to such a wide range.

ASK YOUR JOBBER

SOLD ONLY THROUGH RECOGNIZED JOBBERS

If your jobber does not handle Stokes Products, send us his name and address, and we will send him samples.

Moulders Since 1897

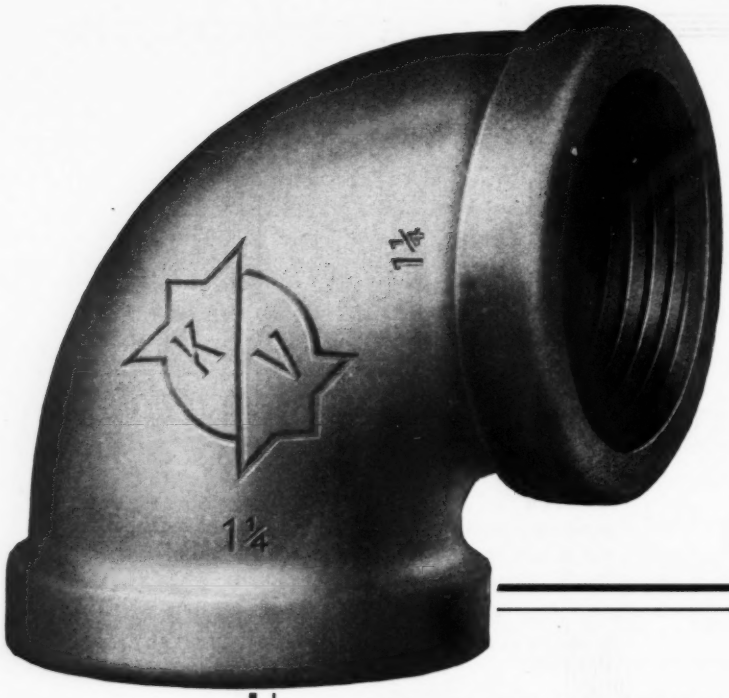
Jos. Stokes RUBBER CO.

Trenton N. J.

Canadian Plant: Welland, Ontario

MOULDERS OF PLASTICS

HARD RUBBER IN EVERY CONCEIVABLE FORM



Kennedy Malleable Iron Pipe Fittings

PROTECTION against imperfect threads, split fittings and leaky connections is assured when you use Kennedy Malleable Iron Pipe Fittings. Precision automatic machining equipment cuts the threads clear and sharp and maintains alignment of threading to 0.010-inch limits. The metal is carefully selected and tested to 45,000-lb. per sq. in. tensile strength, and the fittings are annealed for over 200 hours to assure true malleability. Further, the uniform heavy hot dipped galvanizing on Kennedy Fittings provides lasting resistance to corrosion.

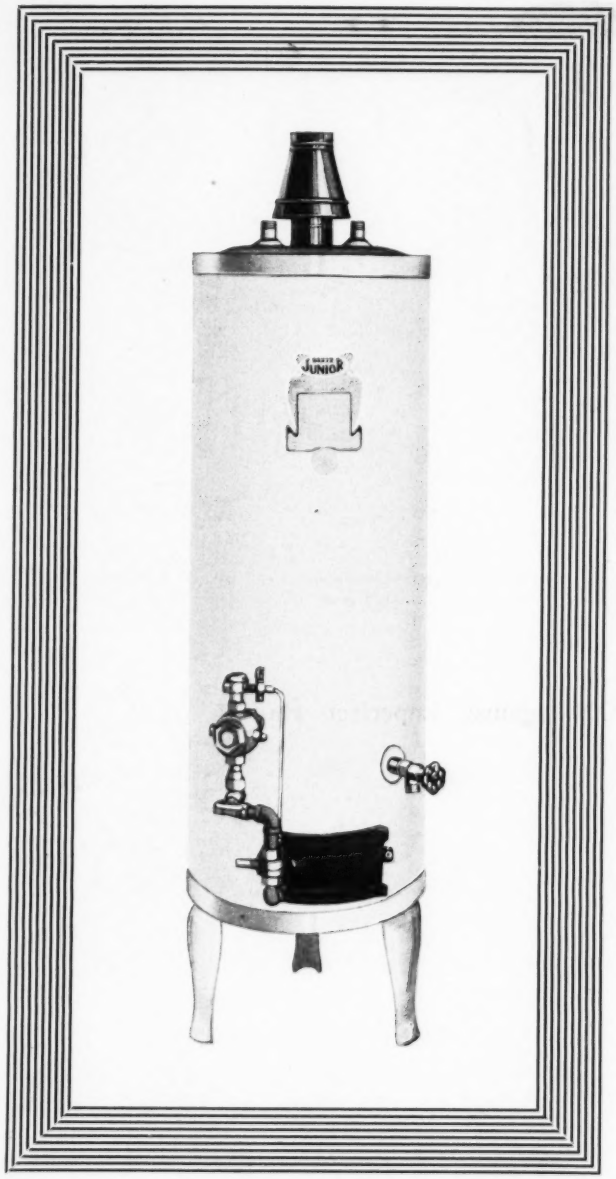
You secure all these advantages at no extra cost when you standardize on Kennedy Fittings, for they are always sold at standard market prices. The big Kennedy line of over 1000 different types and sizes of malleable iron fittings covers all standard requirements and your jobber can keep you supplied if you insist on Kennedys.

Send for the Kennedy Catalog

THE KENNEDY VALVE MFG. CO., ELMIRA, N.Y.
Branches in Principal Cities

KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS



The New

DIXIE

(Series R)

New and Extraordinary

VALUE

in automatic storage heaters

SPECTACULAR in beauty! Sensational in performance! Gold bond in quality! Don't delay displaying this great new Dixie (Series R) on your salesroom floor. Its gleaming beauty, and stunning rich colorful finish is an irresistible eyecatcher. Its many modern features, developed and perfected by advanced engineering methods, will find ready ears and quick, whole-hearted, enthusiasm among the folks in your community. And everyone can readily afford such value at such attractive list prices:

20 gallon	$45.00
30 gallon	55.00
40 gallon	65.00

Don't delay your share of this unusual opportunity. Write or wire at once for full details.

THE HOTSTREAM HEATER CO.

"Makers of Heaters that Heat"

CLEVELAND, OHIO

Manufacturers of a Complete Line of Automatic Storage Heaters, Tank Heaters, Indirect, Gasoline and Kerosene Water Heaters.

Represented in Canada by W. H. Cunningham & Hill, Ltd. Toronto

HOTSTREAM
AUTOMATIC STORAGE
HEATERS

Install STREAMLINE *copper pipe and fittings at practically the same cost as iron . . . and watch your profits grow*

THE cost of installing Mueller STREAMLINE hard copper pipe and fittings is so low that some of your competitors are meeting, with this material, estimates based upon the use of iron pipe and threaded fittings. There are three reasons for this:

1. No insulation. Only in exceptional cases is this necessary on hot water and steam lines.
2. Smaller pipe sizes can be used.
3. Short ends of pipe need not be wasted.

On the other hand, your customers all recognize the fact that copper pipe is worth considerably more than iron.

Between these extremes of low installation cost and willingness to pay a higher price, is your opportunity for a larger profit than usual.

In addition, an installation made with Mueller STREAMLINE fittings and hard copper pipe means a job that is absolutely leak-proof. Rust cannot corrode it. Expansion cannot work it loose. Vibration cannot make it leak. The joint is really stronger than the pipe itself.

Be sure to see demonstration and exhibit of STREAMLINE copper pipe and fittings at the Heating and Ventilating Exposition, Cleveland. Booths 179 and 181.

Mueller STREAMLINE fittings are sold in full range, and in sizes from ¼" to 6", inclusive. If you are not familiar with the profit opportunity in this new patented joint, consult your jobber or write for our catalog.

Patent 1,770,852
Patent 1,776,502
Other Patents Pending

Mueller Brass Co.

PORT HURON, MICHIGAN

MUELLER BRASS CO. OF CANADA, LTD., TORONTO, ONT.

Three Generations of Brass Making

Patent 1,770,852
Patent 1,776,502
Other Patents Pending

L (136)

NYE'S DIE-JEST

THE CELEBRATED SKIP TOOTH DIE—GENUINE NYE

Published in the interest of Progressive Plumbers and Steamfitters and incidentally in the interest of the N. T. & M. W. Vol. 2, No. 2. Price: 1 Order

A Chicago jury voted 7 to 5 for conviction, and then went to lunch and came back and voted 12 to 0 for acquittal. They thought if anybody was hanged it ought to be the cook.

Chicago city employes have been put on a 6-hours-a-day basis. They've always taken it, and now they're going to have it.

It's the pedestrian who needs the shock absorbers, not the car.

The Government wants $2,300,000 for additions to the Senate and House buildings. They ought to use it to buy a few good Senators and Congressmen.

The Interstate Commerce Commission has adjourned the hearings on railroad consolidation until February 15.

(Copyright, 1932, by Harry G. Nye. All rights reserved)

Probably when an interstate commerce commissioner leaves at noon he hangs a sign on the door, "Gone to lunch. Back Thursday."

I tried to talk to a Chinaman the other day, and I don't wonder that the Chinese and Japanese had a misunderstanding.

Both the Democratic and Republican national conventions will be held in Chicago. I would like to see them, if they were held at the same time in the same hall.

In the South Atlantic islands, resort hotels are being built where the pirates used to roam. I can't see that this is any great improvement.

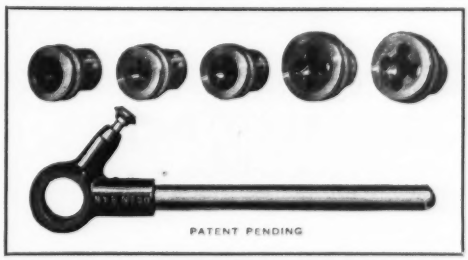
Harry G. Nye

(Otherwise known as The Nye Tool & Machine Works)

Cut Threading Costs in 1932 with this New Threaded Throat Die

Wasted minutes amount up during a year to hundreds of dollars. Don't go through 1932 with poor tools. This new Nye Die with Threaded Throat is the finest die ever made. It cuts better, quicker, easier; wear is evenly distributed; die lasts longer. Starts instantly, as soon as you put it on the pipe, because it balances perfectly, and doesn't require the struggle and push necessary with ordinary dies. Ask your jobber for Nye Threaded Throat Dies in 1932.

"Triad" Stock, Ratchet Type, Assembled or Taken Apart by Hand



No screws or screw-drivers necessary. Fully equipped with Nye solid round dies. Held in place in two stationary pins built into the die heads to prevent them turning; locked in by a threaded die head cap which is easily removed by a few right hand turns. Dies may be reversed in die holder to thread close nipples, special bushings being provided with each stock for this purpose. Size, ⅛ to ¾-inch. Also made in 3-way type, without ratchet, using ⅜, ½ and ¾-inch dies. Sold on 30-days' free trial. Ask your jobber or write us.

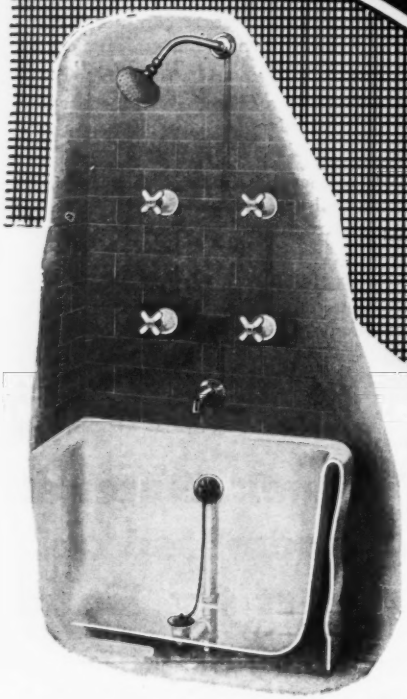
The Nye Tool & Machine Works MANUFACTURERS OF HIGH GRADE PIPE TOOLS **4120-30 Fullerton Ave., Chicago, Ill.**

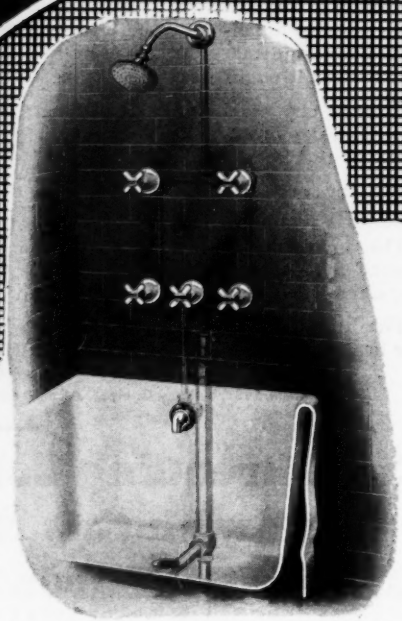
THE CELEBRATED SKIP TOOTH DIE

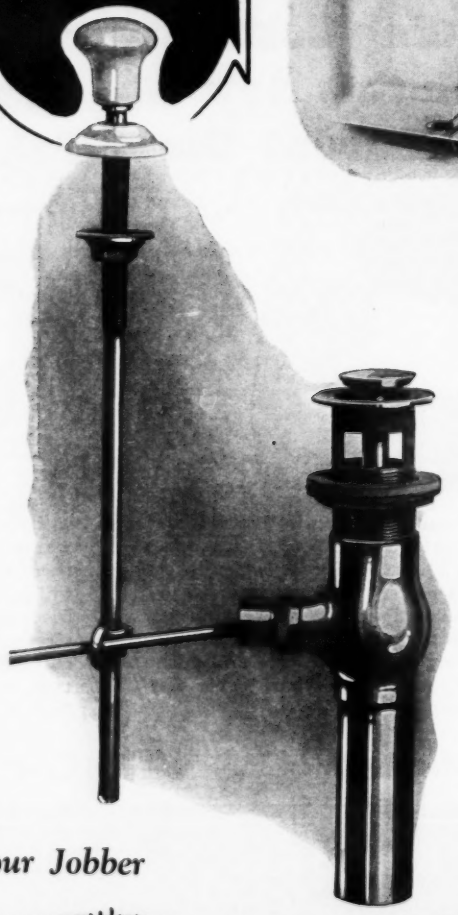
(Genuine Nye)

REG. U. S. PAT. OFFICE

WISECO
PLUMBERS PRODUCTS







"St. Regis"
CONCEALED BATH FIXTURES
Through the rim or Over-rim types

"Wiseco"
POP-UP BASIN WASTE
Simplicity and Durability

BUILT FOR QUALITY

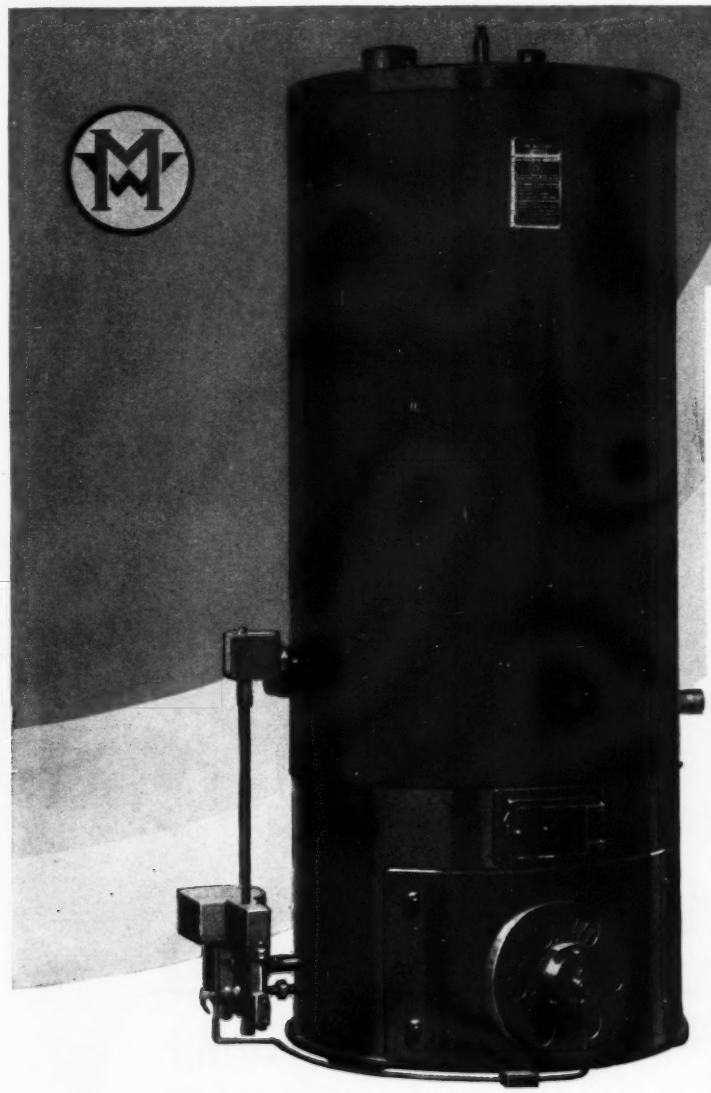
J. B. WISE, Inc.
WATERTOWN, N. Y.

New York
Philadelphia
Atlanta
Detroit

Chicago
Los Angeles
Seattle
San Francisco

THE STANDARD OF QUALITY SINCE 1877

Ask Your Jobber



MW BOILER UNIT

FOR STEAM OR HOT WATER HEAT

Manufactured by Motor Wheel Corporation, Heater Div., Lansing, Mich.

Ready for you!

the MW dealer franchise— are you interested?

MW Household Utilities have taken the lead in supplying home-owners with oil-burning boilers, heaters and air distributors, that put the full heating capacity of fuel oil to greater usefulness. Their cost is moderate. They are building many dealers a sound, dependable income.

There are still some **MW** Dealer Franchises available to the right dealers. These franchises include operation of the **MW** Purchase Plan. Perhaps this franchise interests you? Then, write in for full details.

In the **MW** Matched Boiler Unit, burner and boiler are especially designed—matched—to move heat swiftly into contact with the boiler water. The burner flame is drawn into eight steel flues which run up through the water. Intense heat completely surrounds this water. Special insulation of the outer steel jacket keeps in this heat until it is desired in the radiators. The **MW** Matched Boiler Unit is listed as Standard by The Underwriters' Laboratories. It has no moving parts; is safe and economical. A well-known name to get back of.

Get the Facts, Today

Write for full details of the **MW** Franchise. We'll put you in touch with our nearby distributor. Address Motor Wheel Corporation, Heater Division, Lansing, Mich.

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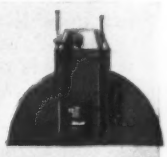
Winter warmth with healthful, humidified air; Summer relief with cooling air in all rooms. The MW Oil-Burning "Weather Control" Unit is automatic and economical. Uses the present air ducts in walls; reduces basement ducts. Listed as Standard by The Underwriters' Laboratories.



MW Oil-Burning Water Heater

Heats 20 gallons of water for 1 cent! The MW Oil-Burning Water Heater is automatic, economical, dependable. Listed as Standard by The Underwriters' Laboratories.

... accept this FREE comfort test.
It's only Common Sense to GET THESE HEATING COMFORT FACTS
Don't burn fuel dollars
Smothered with air... only half-hot... wasting fuel-dollars
Test FREE
Hoffman-ized Radiators hot 15 minutes after opening drafts

30 Million Salesmen

entering the homes of the country . . . creating today's opportunity for the heating contractor

"What depression?" say heating contractors who are following up this army of Hoffman Valve Advance Salesmen. Modernizing jobs come their way thick and fast — good, profitable contracts.

For people today who might otherwise be building new homes are now directing their thoughts towards improving the old. In other words, Mr. Home Owner says, "If I can't have a new home, I'll certainly make the old one more livable."

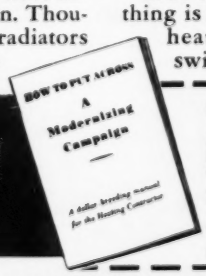
And he's the man Hoffman's nation-wide advertising is reaching—again and again. Thousands of homes in which 10 million radiators are waiting to be modernized, are told of Hoffmanizing comfort and economy.

Just one thing left for *you* to do. Follow-up! Call personally on these prospects — close the sale! Capitalize on the interest created by Hoffman's 30 million advance salesmen.

Effective Merchandising Help

Hoffman has ready for you a strong sales campaign. Newspaper ads—punchy sales letters—circulars—and a book full of ideas on "How to Put Across a Modernizing Campaign."

Send for your supply — everything is Free. Cash in while the heating season is in full swing.



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No. 2 Vacuum Valves
for one pipe steam systems

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Please send me Free booklet, copies of sales letters, and proofs of newspaper ads from which I can make a selection.

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The RED BLAST Boiler Attracts Customers

The RED BLAST Boiler with blower and boiler control is something new and unusual to offer customers and prospects. It burns the cheaper sizes of anthracite with remarkable efficiency, little attention and automatic control, and it makes possible a large saving in fuel bills.

Other features of the RED BLAST are its long combustion and flue travel; attractive insulated jacket; easily assembled with individual tie rods; 18 and 28 inch sizes. Available, if desired, without blower and controls in the RED-GLO Boiler.

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HART & CROUSE CO.

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Anesthetics "On Tap"

. . . in 23 operating rooms!

P R Pipe is selected for this unique Piping System

Harborview Hospital, Seattle, Wash., stores its anesthetics in three centrally-located tank rooms. A complete piping system supplies these anesthetics to each of 23 operating rooms located in widely scattered parts of the hospital.

P R Pipe (No. 1 Soft Temper) was selected for this system because it resists the action of the gases... because fittings are reduced to the least number... because all joints are absolutely leak-proof. The system was tested to 110-lbs. air pressure for a full week. P R Pipe passed the test... with flying colors.

P R Pipe is a 99.9% pure copper pipe, completely deoxidized and having a gun-barrel inside finish free from flaws. It is rust-proof, will resist repeated freezing, and has the effective thickness of S P S (standard pipe size) pipe. It is joined with compression fittings.

It comes in two tempers: hard, for new work and exposed runs; soft, for concealed replacement work.

P R Pipe is intended for plumbing service, where requirements are not nearly as rigid as in this unique system. Its selection in this case is proof enough of its superior fitness for water service.

When you install P R Pipe, you are giving your customers lifelong plumbing satisfaction combined with economy. You are building for yourself a reputation that means increased business, more profits. Why not find out all about P R Pipe and also about Revere Brass Pipe? For further information, address Revere Copper and Brass Incorporated, 230 Park Avenue, New York City.

Harborview Hospital, Seattle, Wash. Thomas, Grainger & Thomas, Architects; Rautman Plbg. and Htg. Co., Plumbing Contractors; Western Construction Co., General Contractors, all of Seattle, Wash. P R Pipe used in a complete piping system for the conveyance of anesthetics from central tank rooms to 23 operating rooms.

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Our Industry

AIR CONDITIONING

Means Comfort and Satisfaction—

Air conditioning is a fortunate phrase. It is broad enough to include both cooling in summer and heating in winter. It is definite enough to convey the impression of satisfaction.

Either heating or cooling can be carried to extremes so that we can be uncomfortably hot or cold. But when air is conditioned, it has been treated to give a predetermined standard of results, either of comfort in the home or of satisfaction in the shop.

Stimulated by the ideal which air conditioning expresses, many manufacturers are working to adapt their particular product or material or process to this new standard. Companies and engineers, new to the heating field, are entering it with new plans and products.

Comes at the Right Time—

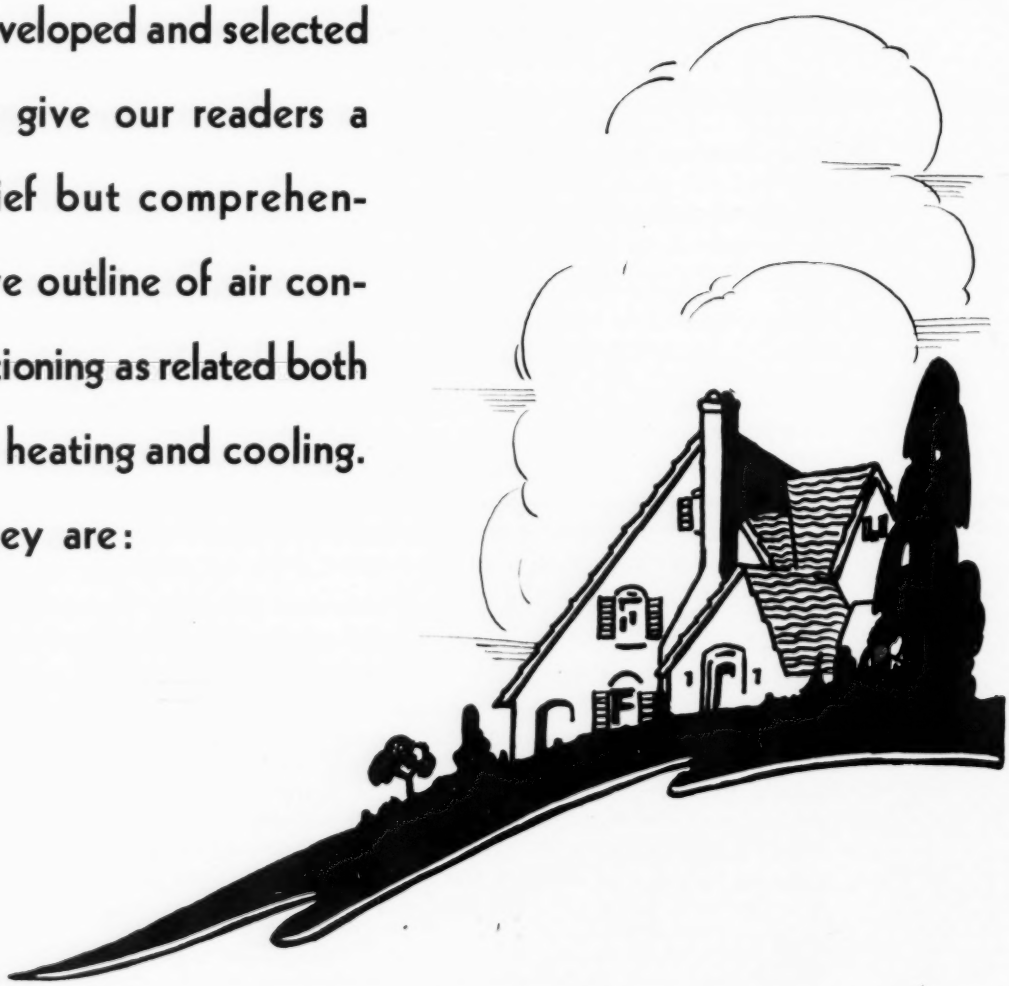
The remoulding of business ideas during the past two years has put tradition in the background and made progressiveness a necessity. It has made manufacturers experiment to find better products or to look for new fields. It has led engineers to inquire for means to meet a new standard of heating values. It has put the contractor and dealer into a position of asking for new products upon which new business can be obtained.

These engineers and contractors are meeting in Cleveland next week, drawn by the joint sessions of the American Society of Heating and Ventilating Engineers and the American Society of Refrigerating Engineers. And they are finding the new products exhibited by these manufacturers.

An Assured Future—

The meeting and exposition are a record of today's accomplishments. The interest now taken in air conditioning is putting the seal of success on the future.

The following articles in this issue have been developed and selected to give our readers a brief but comprehensive outline of air conditioning as related both to heating and cooling. They are:



1—Home Air Conditioning—Its Problems and Possibilities

2—How Ice Is Used for Space Cooling

3—Control Methods for Ice Melting

4—Fundamentals of Air Conditioning

5—How to Figure Cooling Capacities

Home Air Conditioning — Its Problems and Possibilities

By HENRY R. SEWELL

AIR conditioning is a very broad term and in our modern life we apply the term to control of atmospheric conditions within an enclosed space as regards temperature, humidity, freedom from mineral or organic particles, and the circulation of the conditioned air.

It is, therefore, necessary to treat the subject under several classifications as follows: Heating, cleaning, heating with humidification, dehumidification and complete air conditioning, that is cooling and dehumidification in the summer and heating and humidification in the winter and cooling without control of humidification.

The engineer takes air for granted and has developed the process of air conditioning on the fundamental basis that air has several constant characteristics, (1) air always tends to saturate itself with moisture, (2) air is of a gaseous nature and can be readily passed through various media, in order to remove objectionable mineral or organic particles, (3) air can be heated and distributed to maintain life in freezing weather and (4) air can be cooled for more comfortable living conditions in summer.

To understand the properties of air it is necessary to know that air is a gas, and that it follows the law of all gases in that it increases its density when cooled and expands when heated. The amount of water vapor or humidity which it holds varies with its temperature.

Physics has a well known principle that the vapor pressure of a confined liquid increases with its temperature. Also that a volatile liquid will vaporize in air at any temperature at any atmospheric pressure and that the maximum density of this gas will depend entirely on the temperature regardless of the presence of other gases. In passing from a fluid to a gaseous state a large amount of heat is absorbed. In general this heat of vaporization is greater the lower the temperature.

Humidity or water vapor in the air brings out this principle and the density of water vapor, or water holding capacity increases at a much more rapid rate than the temperature. For instance, starting at 30 deg. Fahr. and sea level barometer, air can hold 1.93 grains of moisture per cubic foot; at 40 deg. Fahr., 2.85 grains; at 50 deg. Fahr., 4.08 grains; at 60 deg. Fahr., 5.75 grains; and at 70 deg. Fahr., 7.98 grains. The above grains of moisture at the temperatures stated completely saturate the air and give 100 per cent humidity.

The term, relative humidity, is used to express the amount of water vapor in air at a given temperature as compared with completely saturated air at that temperature.

For example, air at 70 deg. Fahr., as measured on the dry bulb thermometer, with which we all are familiar, can hold 7.98 grains of water per cubic foot. When we say that this air has 51 per cent relative humidity, we

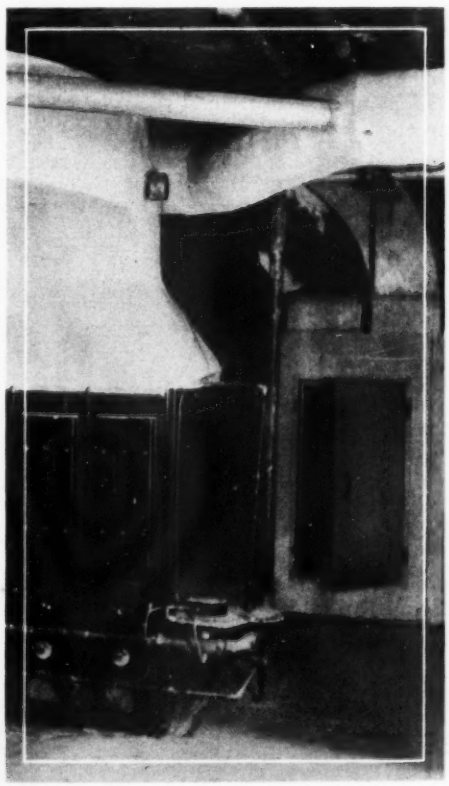


Fig. 1—This is a part of the air conditioning equipment which is installed in the basement of a large residence in one of the suburbs of Chicago

Fig. 2—This shows one of the ventilating fans in the attic which exhausts air into and out of the chimney flue

mean that it has 51 per cent of 7.98 or 4.07 grains of moisture, and that the wet bulb depression is 11 deg. or 59 deg. Fahr. and that the dew point is 51 deg. Fahr. By the dew point is meant the temperature at which 4.07 grains of moisture completely saturates a cubic foot of air to 100 per cent relative humidity.

Water exposed to unsaturated air and not affected by any source of heat will remain at a constant temperature while it evaporates. This temperature will be below that of the air and is the temperature the air will attain when it becomes completely saturated. This is known as the wet bulb temperature. The difference between the dry bulb and wet bulb temperature is called the wet bulb depression.

To read the wet bulb temperature the ordinary thermometer is covered with a cloth wick. The wick is kept wet with water so that the temperature of the evaporating water is registered.

In the art of air conditioning the wet bulb temperature is most important, for, where compared with the dry bulb temperature to give the wet bulb depression, it is a direct measure of the water absorption capacity of the air. For each degree depression of the wet bulb temperature a pound of air has capacity to absorb 1.4 grains of water.

The air engineer in practical working of his problems uses for a unit of density or weight of air .075 pounds per cubic foot at 65 deg. Fahr. and sea level barometer, so that a pound of this air is equivalent to 13.33 cubic feet, and each cubic foot has capacity to absorb .105 grains of moisture for each degree of the wet bulb depression.

We have stated that a large amount of heat is absorbed by a liquid in passing to a gaseous state. To raise the temperature of water one degree, from 32 deg. Fahr. requires one Btu. of heat per pound.

To bring a pound of water to the boiling point, 212 deg. Fahr., requires, therefore, 180 Btu.'s at sea level barometer. But to convert the pound of water into vapor, 970.4 Btu.'s additional are required.

When water is evaporated into dry air the relative humidity is increased. It is readily seen, therefore, that a very large amount of heat is absorbed from the surrounding air. It is on this principle that cooling by evaporation is obtained.

Conversely, when this humidity must be reduced for the sake of comfort or to meet the requirements of air in industrial process, this same heat of vaporization, or latent heat, must be extracted.

Before turning to the consideration of the various treatments of air there is one more characteristic of air to be considered. At 65 deg. Fahr. sea level barometer, air has a specific heat of .2375. By that is meant that one Btu. will raise the temperature of $\frac{1}{.2375}$ pounds of air one deg. Fahr. from 32 deg. Fahr.

Very extensive research has been carried on by the Harvard School of Public Health, which operates in conjunction with Harvard Medical School. The following observations are taken from a recent article published in connection with the results of some of this research work.

"Contrary to former theories the usual changes in oxygen and carbon dioxide are of no physiological concern because they are much too small even under the

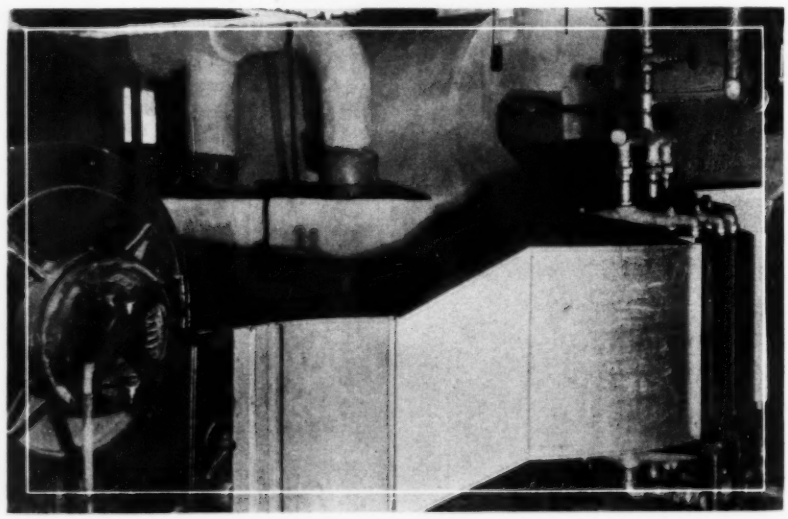


Fig. 3—The cooling coils for summer comfort are located in the duct work at the lower right hand side of the picture. The valve and manifold are seen clearly

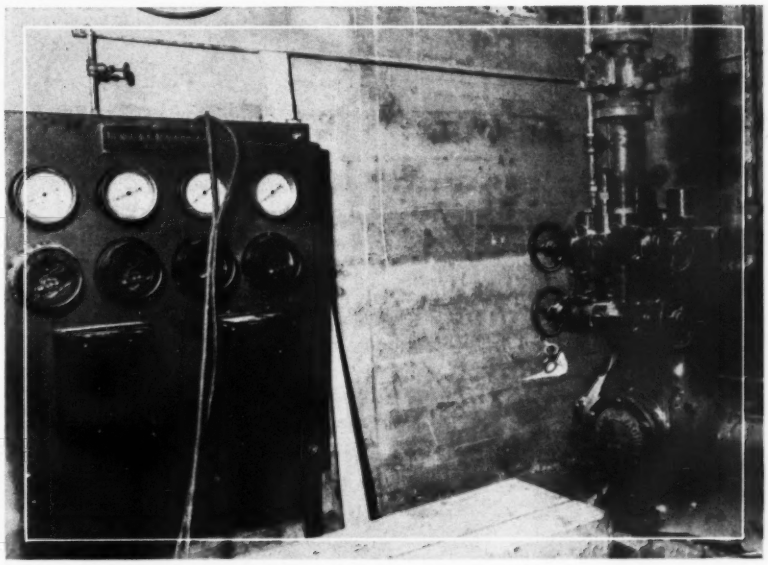


Fig. 4—At the right is a view of one of the control boards and a part of the refrigerating equipment for the space cooling system

worst conditions. The only fact that does appear certain is that expired and transpired air is odorous and offensive and it is capable of producing headache, nausea, loss of appetite and a disinclination for physical activity."

"It is now believed that the primary factors in air conditioning in the absence of any specific contaminating source are temperature, humidity and air movement. This is quite true since upon these factors depends the loss of body heat by radiation, conduction and evaporation. As compared with these physical factors the chemical factors are as a general rule of secondary importance. The principal object in general air conditioning is to keep down the temperature and humidity of occupied spaces within proper limits, to remove odors and prevent stagnation of the air surrounding the body."

From physiological tests made with air in gentle motion, that is, at a velocity of from 15 to 25 feet per minute a revised comfort chart which very clearly brings out the requirements for comfort conditioning has been drawn. These experiments included the personal opinion of a number of subjects at work and at rest, in air of varied temperature and humidity. The expressions of comfort of the various subjects used were rated, and it was found that for summer conditions there was a 98 per cent agreement when air was in gentle motion, that there was the same high percentage of comfort from air at 82 deg. Fahr. with 10 per cent relative humidity, as there was with 71 deg. Fahr. saturated air, and that in winter, where nature has set up a slightly different bodily condition in the human being, there was the same comfort from 76 deg. Fahr. with 10 per cent relative humidity as there was at 66 deg. Fahr. saturated air.

It was further stated that in winter about 40 per cent relative humidity is the practical maximum, and this calls for 71 deg. Fahr. dry bulb temperature. The reason for the choice of the above temperature and humidity is that the equivalent dew point is about 45 deg. Fahr. That is, in winter weather when air of 71 deg. Fahr. with 40 per cent relative humidity comes in contact with a cold surface such as the window pane or exterior walls that are not well insulated, where the temperature might be below 45 deg. Fahr. dew would be deposited on the cold surface with injury to wall coverings, nuisance of water running down on window sills and heavy frosting of windows should the outside temperature be below the freezing point.

These modern observations are opening up a tremendous new field in air conditioning comfort work. It would seem that practically the main principle is dehumidification with a small amount of cooling.

There are mechanical means of dehumidification without refrigeration. There are substances such as

(Continued on Page 108)

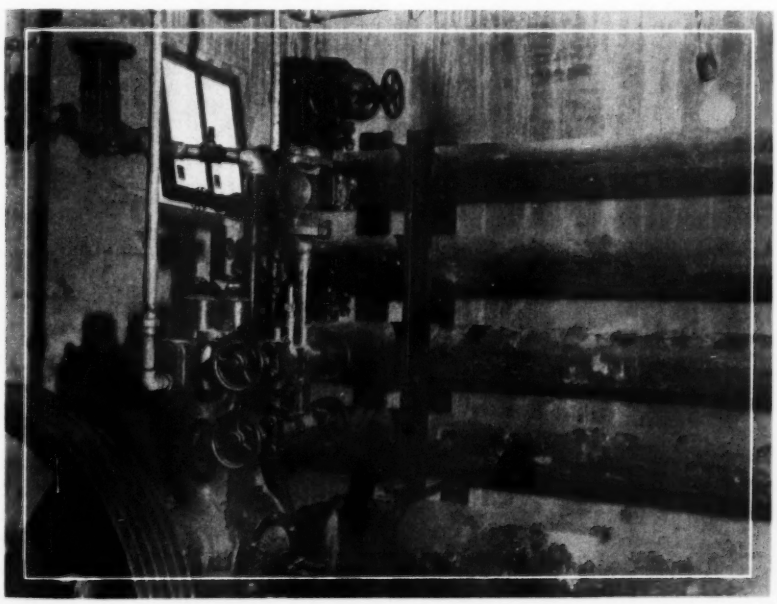
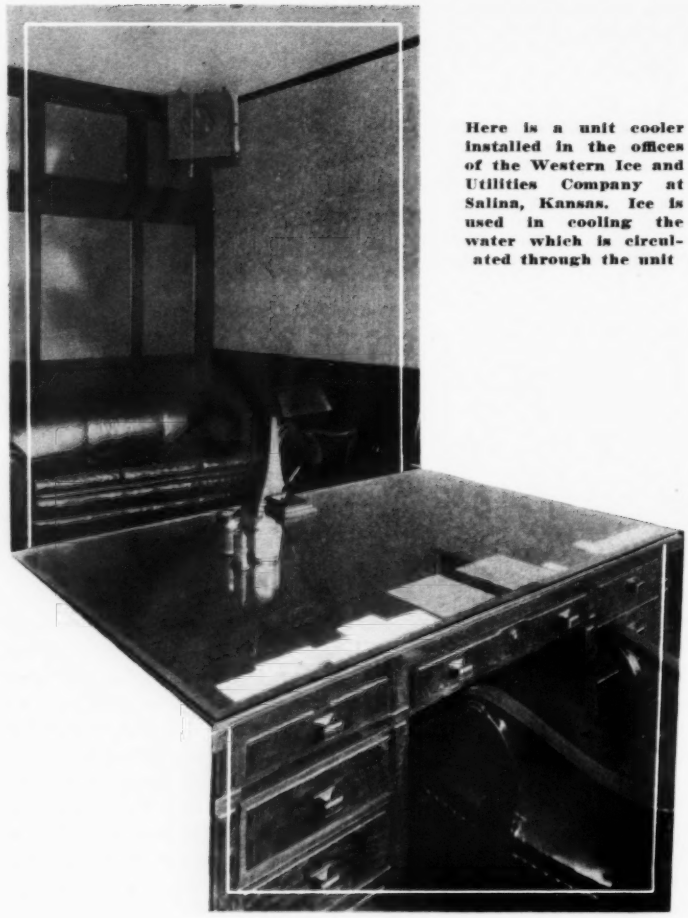


Fig. 5—Here is another view of other portions of the refrigerating machinery used in providing comfort in summer



Here is a unit cooler installed in the offices of the Western Ice and Utilities Company at Salina, Kansas. Ice is used in cooling the water which is circulated through the unit

By TERRY MITCHELL

How Ice Is Used for Space Cooling

Three distinct methods of cooling air with ice have been developed. These include the use of fin type coolers, metal plates supporting ice blocks and cold water sprays

SPACE cooling with ice owes its starts to the example set by air conditioning with mechanical equipment. For places where the air needs to be cooled more or less constantly, or the humidity of the air must be closely regulated, refrigerating machinery will by nature hold its own. Wider use of air cooling by either method will stimulate the field for the other.

The economics of space cooling with ice can be grasped when it is remembered that in most sections of the country we have to cool the air only 10 or 12 degrees Fahr. to insure comfort. And this for only a few weeks or months of the year. Add to this the fact that 85 lb. of ice melted per hour will do as much cooling as a one-ton refrigerating machine, working for the same length of time. Also ice can be bought on a quantity basis.

How far has space cooling with ice been tried? It was used this past summer in two or three theatres in New York, one in Philadelphia, one in Baltimore, two in Indianapolis, one in Cleveland, and six in Chicago. They report an average ice consumption of six tons a day. The First Baptist Church in Atlanta is made comfortable in summer with ice cooling. The same thing holds for the Forum Cafeteria in Kansas City, where thousands of meals are served each day. Stauffer's Restaurant in Philadelphia is another example. An accounting office seating 65 people in Salina, Kansas, is kept at a temperature between 80 and 84 degrees by melting four tons of ice a day. The Hotel Jayhawk at Topeka cools its coffee shop with ice. At Salina we also

find the Weigner Dress Shop protecting its gowns from stains by keeping its patrons cool. An office on Long Island was cooled all summer by ice water pumped from a tank in the adjoining garage. The Boston and Maine, the Pennsylvania and the Santa Fe railroads are operating cars equipped with ice bunkers and cooling fans. Ice cooled air is blown into the sleeping cars standing in the stations of many cities, while the trains are waiting to start on late runs. The American Ice Company delivered 1,250,000 lb. of ice for space cooling purposes in the month of July alone, and some of the western companies undoubtedly totaled an equal volume in this field. The American Service Company has set 500 as its quota for ice cooling units to be sold in 1932. A dental office and a drug store have lately been added to the list of installations.

The first standardized units for space cooling with ice have already appeared on the market, and within another year or two we shall see an active business spring up, including the manufacture, sale and installation of ice cooling equipment. Those who undertake this work may well create a new division of effort allied to the present heating and ventilating trades and to the ice industry, but new in its technic. The National Association of Ice Industries has announced that the theme for its 1932 convention, to be held in San Antonio in November, will be space cooling.

Tests on existing plants have furnished enough information for the first page of the ice cooling engineer's data book.

A 300-pound block of ice will cool a room measuring 12 feet square for a period of six to eight hours.

Each grown person occupying the space needs 215 cu. ft. of fresh air every hour, and the same person is a human furnace throwing off at least 290 units of heat in that time.

Two Kansas experimenters have shown that it takes 17 hundredths (0.17) of a pound of ice to cool each cubic foot of space for a 9-hour day, the temperature being lowered from 91 to 79.

A store supplied with cooled, washed air can expect a 5 per cent increase in sales; a restaurant, theatre, or church should do perhaps 10 per cent better, or more, than before.

In July weather a unit cooler of the dry type will condense from the air over two quarts of moisture per hour. The removal of this excess moisture is just as important as the lowering of the temperature of the air. The relative humidity should be kept between 45 and 55 per cent, both in summer and winter.

Three distinct methods of cooling air with ice have thus far been developed. These do not include the plan first attempted, that of blowing the air directly over the ice. The ice can be simply immersed in a tank of water, the cold water being piped to fin type coolers, similar to an automobile radiator, hung near the ceiling. A fan behind the fin cooler keeps the air in circulation. The moisture which collects on the fins washes the air, to a certain extent. Drain connections must be made to carry away the moisture condensed. The insulated ice water tank and the pumps are usually placed in the basement, where the ice can be slid down from the trucks with ease.

Another scheme is to blow the air between a series of metal plates, standing close together on edge; the ice rests on top of the plates, and presents the same amount of cooling surface until it is completely melted by the air passing underneath. The water runs down the plates, tending to increase the transfer of heat, wash the air,

The preceding illustration shows a small space cooled with ice. This shows a much larger space in the same building which is cooled by an ice and washer unit in the basement and a duct system in the office

Interior view of the Jayhawk hotel coffee shop at Topeka, Kansas. This space is cooled with ice

and deliver the utmost "cold" possible, before being drained away.

The third method follows air conditioning practice and offers the same benefits, thorough washing of the air, and control of humidity. The water is sprayed into the air stream, and then either rains over the ice itself or is piped to a separate water-and-ice tank. A set of angular metal, strips called eliminators, catch any excess water entrained in the air.

By one method or the other, ice cooling can be applied to the hundreds of theatres and halls now fitted with ventilating fans only. Indications are that warm air heating systems can be modified to provide refrigeration in summer.

Control Methods for Ice Melting*

By ROBERT T. BRIZZOLARA

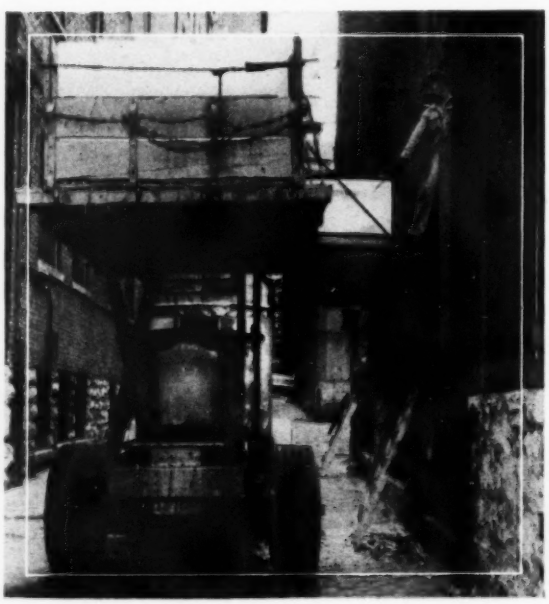
In residences and other buildings, cooling systems using ice require the installation of supply lines, drains, insulation and pumping equipment. Heating and plumbing contractors are interested in space cooling both from the standpoint of this auxiliary equipment and the new field it opens to them

THE melting of one ton of ice to water at 48 deg. Fahr. will yield not less than 320,000 Btu. per ton particularly since ice is manufactured 3 per cent to 6 per cent overweight to allow for normal shrinkage.

The use of purchased ice for cooling work, makes readily available a source of refrigeration in those installations where tonnage requirements are low, the load is of intermittent duration, the load fluctuates widely and when the actual hours of seasonal usages are low. Such loads occur in offices, homes, shops, restaurants, churches and theaters.

In the matter of melting ice for both washer and surface coolers there is the old principle of melting by spraying water over ice held up above a water collecting pan. This spray method has been utilized as well as that of submerging ice partly or wholly in a tank of circulating water. In the latter method, the water is drawn at a fairly low velocity through the submerged ice.

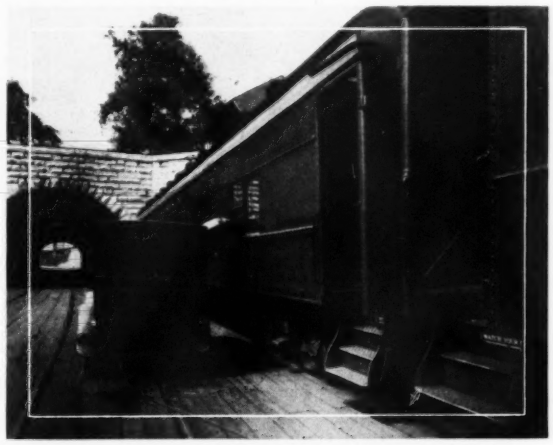
Interesting results have been obtained from the following type of tank. The



Here ice is being delivered to the Forum cafeteria in Kansas City, Missouri, for use in their ice air cooling system

*This article consists of excerpts taken from the paper which Mr. Brizzolara is to present next week at the twenty-seventh annual convention of the American Society of Refrigerating Engineers, in Cleveland.

tank is 26 in. by 32 in. by 10 ft. high. Broken ice is charged at the top in small pieces the largest being 10 in. to 12 in. cubes. The average density of the ice packed in this manner is about 40 lb. per cu. ft. Water is introduced and removed through opposite perforated plates across the long bottom sides. The ice feeds itself downwards. The perforated areas are about 2 ft. deep. The water height is regulated by an adjustable vertical water suction intake. On test with 28.8 g.p.m. flowing for a period of 170 minutes, the inlet and outlet temperature averaged 50 deg. Fahr. and 36 deg. Fahr., respectively with a maximum variation within 2 degees. The face velocity of the water passing through the ice was .677 f.p.m. The hydraulic gradient through the bottom was but a few inches of water. The melting rate is equivalent to 16.7 tons of refrigeration. The ice melting rate 22.6 lb. of ice per minute.



Ice cooled air is shown being blown into the sleeping car while the train is waiting to start on a late run

Either system is equally adaptable for large or small installations. The submerged principle, however, calls for broken or crushed ice to provide sufficient melting surface.

The advantage of the spray system lies in the high rate of heat transfer obtained between the ice surface and a thin film of water running over the ice. The spray further maintains good water distribution over the surface and erodes the ice effectively to present extensive surfaces. The advantage of this action is to make the tail end of an ice charge in a bunker serve, without detriment, to yield the desired temperatures. It is quite difficult to obtain the coefficient of heat transfer between ice and sprayed water. From our own observations it appears to be 500 Btu. per sq. ft. per hr. per degree and upwards to as high as 700 Btu. per sq. ft. per hr. per degree; depending upon the fineness and violence of the spray. Spray heads with 2 to 3 lb. pressure were used for a 10 g.p.m. capacity. With spray heads having a capacity of 30 to 40 g.p.m., a 5-lb. pressure was used.

The action of fine jets of water, an old practice in the milk industry, works quite satisfactorily except the erosion caused by a jet is so rapid as to cut holes through the ice, through which the jets of water pass without making contact with the ice. Unless the ice tumbles about to present new surfaces for attack, much of the circulating water is ineffectively cooled. The spray system permits the use of 300 lb. blocks of ice without the necessity of breaking them. That size and weight of ice is conveniently and economically handled and stacked by the ice man and it is convenient because it represents ice in its most compact form, namely, 57.5 lb. per cu. ft. Crushed ice represents another handling operation through ice crushers and such ice has a density ranging between 35 and 50 lb. per cu. ft. Flaked ice is a great melter at low water velocities because of its extensive surface areas. It has a density of about 35 lb. per cu. ft. Crushed ice and flaked ice melt well when submerged because of extensive surfaces. Combinations of these melting systems are most simply displayed in the practice of feeding block-ice or crushed ice into the water pan of a spray washer; the play of the sprays and submergence melts ice rapidly and keeps it well cut up. Water temperatures are difficult to control however in this example.

In the spray method advocated, a separate insulated chamber is recommended. A separate circulating pump sprays water continuously over the ice. A simple thermostatic by-pass valve, introduced in any variety of ways to suit individual conditions, controls the amount of water sprayed or by-passed around the ice.

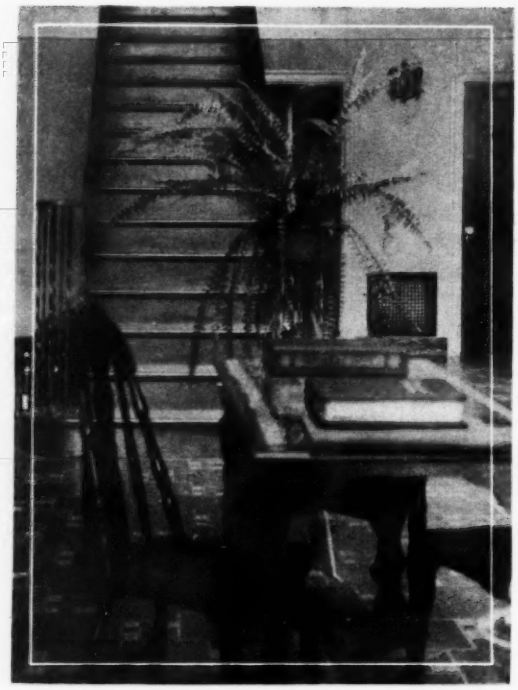
The spray system requires no heavy structurally strong tank, merely a collecting basin some 12 to 18 in. deep is required. It is simpler to adequately insulate a spray chamber than a large tank—while keeping the insulation in good condition.

The matter of insulating a melting chamber is worthy of careful consideration. Usual refrigerator box construction should be avoided. The interior of the chamber should be thoroughly and painstakingly sealed from the insulation. External air should not be admitted to the insulation surface. It is of greater importance to seal tightly the exterior rather than the interior. To preserve insulation effectiveness the higher external vapor pressures should be held out. For a definite penetration into the insulation from the cold side there is a temperature below the dewpoint of the external air vapor mixture surrounding the chamber. Continuous condensation will occur in this range of penetration so long as the external vapor pressure is above the dewpoint vapor pressure. Carefully sealing the exterior against high vapor pressure infiltration and ventilating the inside insulation to the cold low vapor pressure interior will serve to reduce the vapor pressure in the insulation and consequent condensation. Insulation thoroughly sealed on all edges is ideal but quite impossible of continuous attainment.

Hermetically sealing the interior of the insulation from the lower vapor pressure volume in the box simply serves to load up the insulation continuously with moisture. For insulation of ice chambers 4 in. of sheet cork for chamber insulation applied in two layers is recommended. The first 2 in. layer is set in between and tacked to studding. The second 2 in. outside layer should be applied against the first layer, and over the studding is hot asphaltum. All the faces and edges of the sheets forming this second layer should be well dipped in hot asphaltum. The exterior of the chamber should be well sealed and plastered in several courses with waterproof asphaltum compounds. Each plaster course should be about ⅛-in. in thickness. The bare cork interior sur-

(Continued on Page 107)

The Fundamentals of Air Conditioning



The proper distribution of temperature may be effected by selecting radiators and covers which do not give high velocity and high temperature currents of air upward

By F. B. ROWLEY

UNIFORM air temperatures and air distribution are a part of comfortable temperature requirements in every home air conditioning system. Ideal conditions would be to have uniform air distribution to all parts of the room and the same temperature at the top and the bottom. This, however, is not always possible, as warm air rises and the cold air settles. During the heating season, the temperature differences from floor to ceiling may run as high as 25 deg. Fahr., depending upon the type of heating units used. This means an excessive temperature at the top and a cold zone at the floor. This tendency towards a difference in temperature may not be so objectionable in the cooling period, as it is more effective to cool the lower part than the upper part of the room.

While there is a great difference in the tendency of different heating units to give uneven distribution of air temperature from floor to ceiling, one of the fundamental principles in preventing this is to keep high temperature air from reaching the ceiling. In an air conditioning plant employing duct work, this may be accomplished by: first, admitting the warm air at the floor line and diffusing it as rapidly as possible with the lower strata of air, thus reducing the air temperatures before they have had time to rise; second, introducing the air at low temperatures. The nearer these temperatures are to those of the room, the less tendency there will be to create high temperatures at the ceiling. Third, to introduce the air at such velocities that it will be thoroughly diffused and brought to approximately the room temperature in the lower part of the room. If direct radiating units are used, the proper distribution of temperature may be effected by selecting radiators which do not give high velocity, high temperature currents of air upwards toward the ceiling, but rather those units which diffuse the air at low temperatures throughout the lower part of the room. Any heating system which has a tendency to deliver high temperature air in such a manner in the room that it will reach the ceiling without diffusion with the other air will tend toward excessive temperature differences from floor to ceiling. If high temperature air is once thrown to the ceiling it cannot be brought down by gravity.

Effect of Temperature on Health

It is a simple matter to bring cold air up to any definite temperature, but comfort and health demand more than this. Temperature must be controlled; humidity must be regulated. When the outside temperatures become higher than that required for comfort and health, then the problem of heating becomes one of cooling. It is just as necessary to keep the air down to the proper

temperature as it is to raise it to the comfortable condition. The temperature-regulating mechanism of the body will function in overhead conditions, but comfort and health are aggravated.

Air may be cooled in several ways. If cold water is available, it may be cooled by passing it through a spray of cold water. In this case, there will be a direct cooling, depending upon the temperature difference between the air and the water. If the air is dry, there will also be a cooling depending upon the amount of water evaporated and taken up by the air. If, on the other hand, the air contains water or moisture to such an extent that it is cooled below the dew point, some of this water will be condensed out of the air and the air will leave the washer at a lower relative humidity. In this case, not only the actual temperature of the air will have been lowered, but the effective temperature will likewise have been lowered, due to the fact that the relative humidity has been reduced. If this method is to be effective, the temperature of the cooling water must be some 15 or 20 deg. Fahr. below that of the air.

If cold water is not available, ice may be used. For this, there are several possible methods:

1st. The air may be brought directly in contact with the ice, at which time the air is cooled and relieved of its sensible heat and also of part of its moisture if it is cooled down below its dew point.

2nd. The air may be passed through sprays of water which have been cooled by passing the water over the ice. In this case, the sensible heat will be removed from the air, moisture being either added or removed, depending upon the moisture condition of the entering air and its temperature when leaving the water spray.

The air may also be cooled by direct refrigeration. In this case, the air may be passed over cooling coils, or the refrigerating coils may be used to cool the spray water through which the air is passed. If the air is passed directly over the cooling coils, it will be relieved of its sensible heat and, also, of some of its moisture if it is cooled below the dew point. The same results will be obtained by passing it through the cold water spray, but, in this case, if it is not cooled below the dew point, it may actually absorb some of the water of the spray. In any case, where air is passed through a water spray extreme care must be exercised to prevent the mist or fog from being carried on with the air, thus giving an excess of moisture.

The process of de-humidifying can only be accomplished by cooling the air below its dew point. Consider the requirement of 70 deg. Fahr. air at 60 per cent relative humidity. If air of a higher percentage of saturation is to be brought down to this point, it will be necessary to cool it to a dry bulb temperature of 55 deg. Fahr. Air brought to this temperature for the purpose of de-humidification would be too cold to introduce into the room for ventilation. It would therefore be necessary to mix the de-humidified air with some of the air in the room for recirculation.

Aside from the direct problem of cooling the air, there is a question of where to locate the cooling apparatus and as to how many rooms it is practical to cool. It is usually not practical to cool the entire house, but rather necessary to shift the cooling effect to those parts actually occupied. Thus sleeping rooms might be cooled at night, and living rooms cooled throughout the day.

Consider the cooling required for an average six room house occupied by six people. If the occupants are at rest, they will generate approximately 2,400 Btu. per hour. If the house be considered to be of average construction with single windows, with a 70 deg. Fahr. air temperature inside and 90 deg. Fahr. temperature outside, the heat coming into the house from the outside will be approximately 15,000 Btu. per hour or nearly seven times that required to keep the occupants cool. This shows clearly the necessity of confining the cooling to certain portions of the house, and, also, the necessity of considering the design of the house as a part or in conjunction with the design of the cooling system. It is more necessary to insulate a house which is to be cooled than it is where heating alone is the problem. In spite of this fact, most consideration for insulation has been given to the houses built in cold climates.

Another important point that must be considered in cooling is that of air infiltration or leakage through the building. Many of our houses leak air like sieves, and the air leakage through the average house is more than enough to take care of the ventilation requirements. Most

(Continued on Page 107)

If high temperature air is once thrown to the ceiling, it cannot be brought down by gravity

How to Figure Cooling Capacities

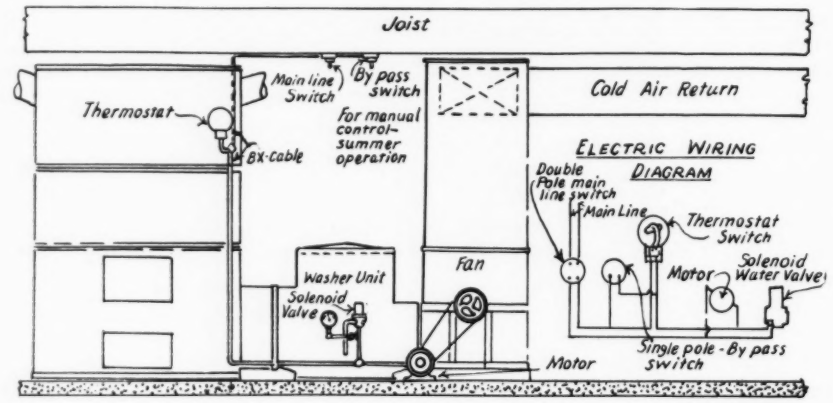


Fig. 1—This shows the set-up of equipment about which the problem in this article centers

By HAROLD L. ALT

THE problem which is considered in this article has to do with utilizing the equipment shown in Fig. 1 for humidifying in winter as well as cooling in summer. It has been estimated that the Btu. loss for the volume which normally would be served by this unit is 175,000 Btu. in zero weather or about 175,000/70 or 2,500 Btu. per degree difference between the inside and outside temperature. In the ordinary type of commercial air washer 9 ft. long the air, to all intents and purposes, is saturated when it leaves the washer and the water, constantly being reused, soon becomes heated to within a few degrees of the temperature of the air. Therefore, it becomes necessary either to artificially cool the water to a temperature slightly below that desired in the air or to supply a constant flow of fresh, cool water. In most cooling systems the air is arranged to leave the washer at, or near, 50 deg. Fahr., saturated. This is because air, when saturated at this temperature, has the proper amount of moisture to give approximately 50 per cent relative humidity when it reaches the room temperature of 70 deg. Fahr.; if the room temperature is somewhat over 70 deg. Fahr., such as may occur in extreme summer temperatures that sometimes prevail, then the relative humidity will be a little less than 50 per cent.

In cooling a building there is a great deal of time when the moisture in the outside air at the high temperatures is more than the air can contain when reduced to around 50 deg. Fahr., as occurs in the washer; at such time some of the moisture must be removed, entailing an additional load on the cooling over and above that of simply lowering the air temperature. The A. S. H. V. E. Guide states that the operation of an air washer would hardly be justified without a water supply having a temperature of 50 deg. Fahr., or cooler.

Now, if the building or house to be cooled is to be reduced to a temperature not to exceed 10 deg. less than that existing outside, the Btu. which must be removed from the air as it passes through the air washer will be 2,500 Btu. for each degree of difference or

2,500 Btu. x 10 or 25,000 Btu.

and, if 2,228 c.f.m. are being handled the c.f.h. will be

2,228 c.f.m. x 60 or 133,680; say, 134,000 c.f.h.

and, as about 50 cu. ft. of air raised 1 deg. Fahr. require 1 Btu., it will require as many Btu. to raise 134,000 c.f.h. one degree as

134,000/50 or 2,680 Btu.

and 25,000 Btu. will raise the air temperature

25,000/2,680 or 10 deg. Fahr., almost.

Any persons, lights, gas stoves, or other sources of heat in the house will increase this still more—probably to 12 deg. Fahr., while leakage and air change might add another 2 or 3 deg., making 15 deg. Fahr., total increase in temperature of the air after it enters the room. This gives the following for extreme 90 deg. Fahr. weather:

Temperature outside .....90° F. assumed maximum
Temperature inside .....80° F. or 10° less
Temperature rise in air.....15° F. for heat losses, leakage, etc.
Temperature of entering air.—
65° F. *maximum*

and for average summer weather:

Temperature outside .....80° F.
Temperature inside .....70° F.
Temperature rise in air.....15° F.

Temperature of entering air.....55° F. *average*

while similar calculation for an outside temperature of 100 deg. Fahr., the temperature of the incoming air is shown to be 75 deg. Fahr.

Now it can be seen why we keep talking about air around 50 deg. Fahr. and wash water below this temperature in the washer as the above shows that for average summer weather the temperature of the incoming air will be around 55 deg. Fahr.

Now, let us see about the water; on a day when the outside temperature is 80 deg. Fahr., and the relative humidity is 70 per cent, the weight of the vapor in one cubic foot of air (saturated) is 0.001576 lb., so 70 per cent of this will be

0.001576 x 70 per cent or 0.0011032 lb.

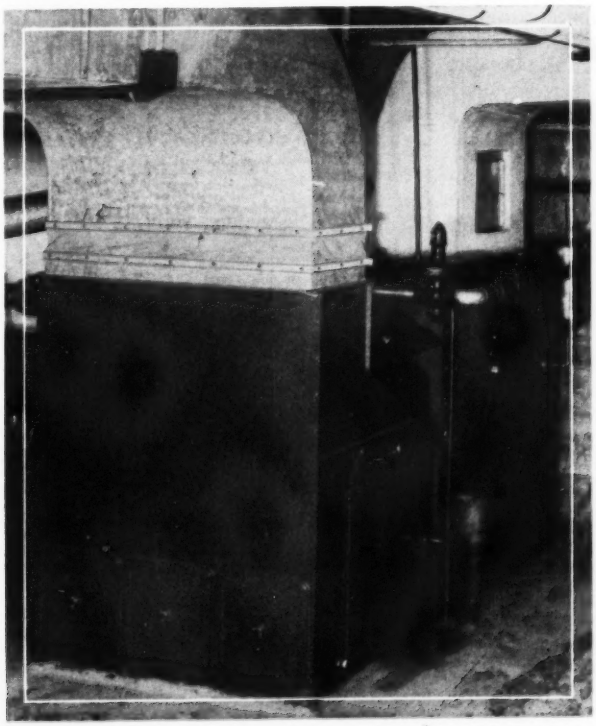
which is almost the exact quantity of vapor in a cubic foot of air saturated and at 70 deg. Fahr. To reduce this air to 55 deg. Fahr. (the temperature at which it must enter the room) from 70 deg. Fahr. (the room temperature) requires

134,000 c.f.m. x 15°/50 or 40,200 Btu.

This is for cooling the air only, but about 25 per cent of this air is fresh air leakage from the outside and contains a certain amount of vapor which will be squeezed out in cooling it down to 55 deg. Fahr., and this will release a further amount of Btu. which must be absorbed by the cooling water besides the Btu. actually required for reducing the air temperature. It already has been shown that the outside air at 80 deg. Fahr. and 70 per cent relative humidity reaches a practically saturated condition at 70 deg. at which time it contains 0.0011032 lb. of vapor per cubic foot.

When this air is reduced to 55 deg. Fahr., it only can carry 0.0007 lb. of vapor because this is all the vapor to bring the air to saturation point at this temperature. So the vapor to be removed will consist of

Vapor in 1 cu. ft. of saturated air at 70°	0.0011 lb.
Vapor in 1 cu. ft. of saturated air at 55°	0.0007 lb.
Vapor to be removed and condensed	0.0004 lb.



Here is a piece of air conditioning equipment which has been scientifically proportioned to take care of definitely designed loads

As we have a total of 134,000 cubic feet of air of which 25 per cent is fresh air requiring dehumidifying, the total water to be removed is

134,000 x 25 per cent x 0.0004 or 13.4 lb.

which, at 971 Btu. per pound, the latent heat of one pound of water at atmospheric pressure gives

971 Btu. x 13.4 or 13,011 Btu.

and, adding this to the Btu. required for cooling only, gives a total Btu. liberation of

Cooling	40,200 Btu.
Dehumid	13,011 Btu.
Total	53,211 Btu.

Assuming, most optimistically, that water can be obtained at as low a temperature as 45 deg. Fahr. (which is very much to be doubted), and that it can be allowed to go as high as 50 deg. Fahr. in the washer in order to deliver 55 deg. Fahr. air—the temperature required to suit the average summer condition—we have a 5 deg. Fahr. allowable increase in water temperature. Therefore every pound of water will absorb 5 Btu. in raising 5 deg. Fahr., and the total Btu. requirement of 53,211 Btu. will need

53,211 Btu./5 Btu. or 10,642 lb.

which is

10,642/8 1/3 lb. or 1,277 gallons per hr.

As an example, if the air washer shown in Fig. 1 uses 48 gallons of water per hour, which is

48 x 8 1/3 lb. or 400 lb.

of water from which we have to absorb heat. As 1 lb. of water raised 1 deg. Fahr. requires 1 Btu., the number of degrees that 400 lb. of water will be raised by 53,211 Btu. will be

53,211/400 or 133 deg. Fahr.

which, of course, is an absurdity, and is caused by an utterly inadequate supply of water for the cooling work that is to be done.

A view of Cleveland's famous thoroughfare, Euclid avenue, looking west from East 17th street

Heating, Ventilating and Refrigerating Engineers Assemble in Cleveland

ALL BRANCHES of the heating, ventilating and air conditioning industry will assemble in Cleveland, Ohio, January 25-29 for the Heating and Ventilating Exposition, which is to be held in conjunction with the annual meetings of the American Society of Heating and Ventilating Engineers and the American Society of Refrigerating Engineers.

All of the new developments intended for display at the exposition will be ready for the opening. Their number and variety will furnish striking proof of the stimulating effect of the exposition on development work in this field.

Another influence which is acting to make the exposition a rallying point for new ideas is the fact that so many home-owners and others directly interested in heating, ventilating and air conditioning for new construction and remodeling will be in attendance, looking for improved means for warming and cooling their homes. There will be a notable increase in the array of devices for house application to meet this demand.

As the opening date draws near, it is evident that the exposition will mark not only the farthest advance in heating, ventilating and air conditioning, but that it will perform a unique service in indicating future trends in the development of the art. In the ventilating field, for example, the exhibits will reflect the increasing attention which is being given to the elimination of dust and noises, particularly in offices and domestic ventilating appliances.

Another trend which will be indicated by the exposition is in connection with the heating of rooms. In several of the exhibits of baseboard radiators and concealed heating surfaces generally, the enclosures will be provided with side outlets designed to effect a horizontal air flow across the room.

The A. S. H. V. E. will have an attractive exhibit at the exposition showing working models of laboratory equipment to demonstrate how data are taken during investigations at the Research Laboratory in Pittsburgh and in the co-operating college laboratories.

A. S. H. V. E. Program

Monday—January 25th

10:00 a.m.—Meeting of the Council
12:30 p.m.—Luncheon for Officers and Authors
2:00 p.m.—Meeting Committee on Research
7:00 p.m.—Joint Dinner-Meeting of the Councils of the A. S. H. V. E. and A. S. R. E. and their wives (Hotel Cleveland)
8:30 p.m.—Inspection of Second Heating and Ventilating Exposition

Tuesday—January 26th

9:30 a.m.—First Session (Ballroom Hotel Statler)
Address of Welcome
Response by Pres. W. H. Carrier
Reports of Officers
Report of Council
Reports of Council Committees
Executive, F. B. Rowley, Chairman
Finance, F. C. McIntosh, Chairman
Membership, Roswell Farnham, Chairman
Publication, W. A. Rowe, Chairman
Report of Committee on Research, C. V. Haynes, Chairman
Report of Director of Research Laboratory, F. C. Houghten
Reports of Technical Advisory Committees
Reports of Special Committees
Guide Publication Committee, D. S. Boyden, Chairman

Committee on Increase of Membership, C. W. Farrar, Chairman

Reports of Continuing and Co-operating Committees

Report of Tellers of Election

Technical Papers:

Surface Coefficients as Affected by Direction of Wind, by F. B. Rowley and W. A. Eckley

Conductivity of Concrete, by F. C. Houghten and Carl Gutberlet

2:00 p.m.—Second Session (Ballroom, Hotel Statler)

Technical Papers:

Importance of Radiation in Heat Transfer Through Air Spaces, by E. R. Queer

Heat Emission from Iron and Copper Pipe, by F. C. Houghten and Carl Gutberlet

Hot Water Friction Heads in One-Inch Cast Iron Tees, by F. E. Giesecke and W. H. Badgett

Some Fundamental Considerations of Corrosion in Steam and Condensate Lines, by R. E. Hall and A. R. Mumford

7:00 p.m.—Inspection of Second Heating and Ventilating Exposition

8:30 p.m.—Informal Reception including entertainment and Monte Carlo (Ballroom Hotel Statler)

Wednesday—January 27th

10:00 a.m.—Third Session (Little Theatre, Cleveland Auditorium)

Joint Meeting with A. S. R. E.—Program arranged by A. S. H. V. E.—Pres. W. H. Carrier presiding

Technical Papers:

Changes in Ionic Content of Air in Occupied Rooms Ventilated by Natural and by Mechanical Methods, by C. P. Yaglou, L. C. Benjamin and S. P. Choate

Acoustical Problems in Heating and Ventilating of Buildings, by V. O. Knudsen

Heat Transmission as Influenced by Heat Capacity and Solar Radiation, by F. C. Houghten, J. L. Blackshaw and E. M. Pugh

Field Studies of Office Building Cooling, by S. S. Sanford, E. P. Wells and J. H. Walker

2:00 p.m.—Trip to Akron (Goodyear-Zeppelin Hangar)

7:00 p.m.—Dinner for Past-Presidents and Wives (Hotel Statler)

8:00 p.m.—Ladies' Theatre Party at Keith's Palace

8:00 p.m.—Inspection of Second Heating and Ventilating Exposition

Thursday—January 28th

10:00 a.m.—Fourth Session (Little Theatre, Cleveland Auditorium)

Joint Session with A. S. R. E.—Program arranged by A. S. R. E.—Alvin H. Baer presiding

Technical Papers:

Application of Electric Refrigeration to the Heating and Cooling of Houses, by F. H. Faust, E. W. Roessler and A. R. Stevenson, Jr.

Air Conditioning Applied to Cold Storage Including a New Psychrometric Chart, by C. A. Bulkeley

Biological Aspects of Thermal Engineering, by Samuel R. Prescott

2:00 p.m.—Fifth Session (Ballroom, Hotel Statler)

Report of the Committee on Testing and Rating Unit Ventilators, John Howatt, Chairman

Report of Committee on Ventilation Standards, W. H. Driscoll, Chairman

2:30 p.m.—Ladies' Bridge (Chamber of Commerce)

7:00 p.m.—Annual Banquet and Dance (Hotel Statler)

Friday—January 29th

10:00 a.m.—Sixth Session (Ballroom, Hotel Statler)

Technical Papers:

A Study of Intermittent Operation of Oil Burners, by L. E. Seeley

Room Warming by Radiation, by A. H. Barker

A Study of the Combustible Nature of Solid Fuels, by R. V. Frost

Installation of Officers

Resolutions

Adjournment

12:30 p.m.—Luncheon and Meeting of Council

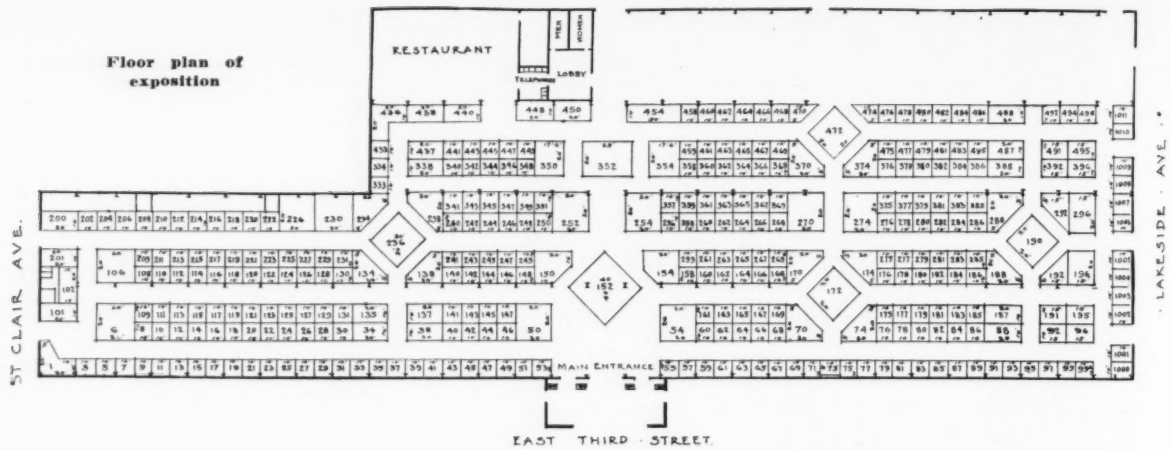
2:30 p.m.—Inspection Trip to Cleveland Industrial Plants

Exhibits Will Show Newest Products

The list of those who will display their products at the exposition follows:

Space No.		Space No.	
169	Adams Bros. Mfg. Co., Inc., Pittsburgh, Pa.	190	American Oil Burner Association, New York, N. Y.
352	Aerofin Corp., Newark, N. J.	438	American Propellor Co., South Bend, Ind.
365–367	Aerologist, The, Chicago, Ill.	338–340, 437–441	American Radiator Co., New York, N. Y.
55–57	A. G. A. Testing Laboratory, Cleveland, O.	270	American Society of Heating & Ventilating Engrs., New York, N. Y.
21	Air Control Systems, Inc., Chicago, Ill.	102	American Society of Refrigerating Engrs., New York, N. Y.
42–44	Airgard Ventilator Corp., New York, N. Y.	369	American Temperature Indicating Co., Toledo, O.
1	Air Reduction Sales Co., New York, N. Y.	369	American Warming & Ventilating Co., Toledo, O.
42–44	American Air Filter Corp., Louisville, Ky.	348	Ames Iron Works, Oswego, N. Y.
172	American Gas Association, New York, N. Y.	448–450	Ames Pump Co., New York, N. Y.
275–277	American Gas Products Corp., New York, N. Y.	140	Armstrong Machine Works, Three Rivers, Mich.
476	Auer Register Co., Cleveland, O.		
1000–1001	Automatic Burner Corp., Chicago, Ill.		
74	B-Line Boiler Co., Cleveland, O.		
138	Barber-Coleman Co., Rockford, Ill.		
170	Barber Gas Burner Co., Cleveland, O.		
135	Barnes & Jones, Inc., Jamaica Plain, Boston, Mass.		
238	Bishop & Babcock Sales Co., N. E. Cleveland, O.		
259	Bohn Aluminum & Brass Corp., Detroit, Mich.		
126–128	Bonney Forge & Tool Works, Allentown, Pa.		
130	Borden Co., Warren, O.		
43–45	Brownell Co., Dayton, O.		
54	Bryant Heater & Mfg. Co., Cleveland, O.		

Floor plan of exposition



Space No.		Space No.		Space No.	
30–34	Buckeye Blower Co., Columbus, O.	248–250	Struthers Dunn, Inc., Philadelphia, Pa.	362	Independent Air Filter Co., Inc., Chicago, Ill.
229	Building Arts Exhibit, Inc., Builders Exchange Bldg., Cleveland, O.	492	Eagle-Picher Lead Co., Joplin, Mo.	482	Independent Register & Mfg. Co., Cleveland, O.
165	Burdett Mfg. Co., Chicago, Ill.	66–68	East Ohio Gas Company, Cleveland, O.	27–29	Iron Fireman Mfg. Co., Portland, Ore.
259	Capitol Brass Division, Detroit, Mich.	244	Economy Pumping Machinery Co., Chicago, Ill.	440	Johns-Manville Corp., New York, N. Y.
23	Carbondale Machine Co., Carbondale, Pa.	376	Emerson Elec. Mfg. Co., Inc., St. Louis, Mo.	191	S. T. Johnson Co., Oakland, Calif.
350–352	Carrier Corp., Newark, N. J.	274	Engineering Publications, Inc., Chicago, Ill.	361–363	Johnson Service Co., Milwaukee, Wis.
352	Carrier Engineering Corp. Newark, N. J.	164–166	Estate Stove Co., The, Hamilton, O.	283–285	Keasbey & Mattison Co., Ambler, Pa.
352	Carrier-Lyle Corp., Newark, N. J.	366–368	Fitzgibbons Boiler Co., Inc., New York, N. Y.	231	John G. Kelly, Inc., New York, N. Y.
350	Carrier-York Corp., Philadelphia, Pa.	60–62	Forest City Foundries Co., Cleveland, O.	366–368	Kewanee Boiler Co., New York, N. Y.
236	W. D. Cashin Co., South Boston, Mass.	174	Fox Furnaces Co., Elyria, O.	443–445	Kewanee Boiler Corp., Kewanee, Ill.
186	Century Electric Co., St. Louis, Mo.	19	Fox Smith Sales Co., Cleveland, O.	131	Kieley & Mueller, Inc., New York, N. Y.
95–97	Century Engineering Corp., Cedar Rapids, Iowa	204–206	Frick Company, Inc., Waynesboro, Pa.	485	Kleenaire Filter Co., Stevens Point, Wis.
279	W. M. Chace Valve Co., Detroit, Mich.	212–214–216	Frigidaire Corp., The, Dayton, O.	486	Knowles Mushroom Ventilator Co., New York, N. Y.
137–141	Chicago Pump Co., Chicago, Ill.	187	Fuel Oil Journal, New York, N. Y.	464	Lakeside Company, Hermansville, Mich.
	Cleveland Engineering Society, Cleveland, O.	44	General Air Filters Co., Louisville, Ky.	148	Leeds & Northrup Co., Philadelphia, Pa.
170	Cleveland Gas Burner & Appliance Co., Cleveland, O.	254	General Electric Co., Schenectady, N. Y.	51–53	The Linde Air Products Co., New York, N. Y.
288	Cleveland Steel Products Corp., Cleveland, O.	254	General Electric Heat Regulator Co., Philadelphia, Pa.	26–28	McCord Radiator & Mfg. Co., Detroit, Mich.
19	Cleveland Stoker Co., Cleveland, O.	160–162	General Gas Light Co., Kalamazoo, Mich.	161–163	J. H. McCormick & Co., Philadelphia, Pa.
25	Coal Carburetor Co., New Brunswick, N. J.	1008–1009	Gilbert & Barker Mfg. Co., Springfield, Mass.	182	McDonnell & Miller, Chicago, Ill.
63	Columbia Burner Co., Toledo, O.	458–460	Greene Gas Cleaner Co., Cleveland, O.	154	Jas. P. Marsh & Co., Chicago, Ill.
480	Columbus Humidifier Co., Columbus, O.	236	Grinnell Co., Inc., Providence, R. I.	462	Masonite Corp., Chicago, Ill.
259	Conco Temperature Control Corp., Detroit, Mich.	236	Grinnell Co. of Canada, Ltd., W. Toronto, 9, Ont., Can.	238	Massachusetts Blower Co., Cleveland, O.
175	Cook Electric Co., Chicago, Ill.	465	Hart & Cooley Mfg. Co., Holland, Mich.	1002–1003 1004	May Oil Burner Corp., Baltimore, Md.
225–227	Cooling & Air Conditioning Corp., New York, N. Y.	292	Hart Oil Burner Corp., Peoria, Ill.	195	The Mercoid Corp., Chicago, Ill.
124	Copeland Products Co., Mt. Clemens, Mich.	192	Heating Journals, Inc., New York, N. Y.	42	Midwest Mfg. Co., Bradford, Pa.
142	Coppus Engineering Corp., Worcester, Mass.	274	Heating, Piping & Air Conditioning, Chicago, Ill.	280	Mineral Felt Insulating Co., Toledo, O.
46–50–147	Crane Company, Chicago, Ill.	333–334–433	Heating and Ventilating, New York, N. Y.	256–258–260	Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
99A	Crystal Oil Burner Corp., New York, N. Y.	468–470	Henry Furnace & Foundry Co., Cleveland, O.	184	Modern Heat Regulator Co., Cleveland, O.
71	N. C. Davison Gas Burner & Welding Co., Pittsburgh, Pa.	465	Wm. Highton & Sons, Div. of Hart & Cooley Mfg. Co., Holland, Mich.	375	Modine Mfg. Co., Racine, Wis.
46	Doherty-Brehm Co., Chicago, Ill.	365	E. Vernon Hill Co., Chicago, Ill.	92	Monarch Mfg. Works, Inc., Philadelphia, Pa.
274	Domestic Engineering, Chicago, Ill.	244–264 345–347	Hoffman Specialty Co., Inc., Waterbury, Conn.	39–41	Motor Stokor Corp., New York, N. Y.
354–358–459	C. A. Dunham Co., Chicago, Ill.	38	Illinois Engineering Co., Chicago, Ill.	88	Motor Wheel Corp., Lansing, Mich.

Space No.	
49	Mouat Vapor Heating Co., Cleveland, O.
261–263	L. J. Mueller Furnace Co., Milwaukee, Wis.
179–181	Mueller Brass Co., Port Huron, Mich.
374	Multicell Radiator Corp., Lockport, N. Y.
152	Nash Engineering Co., South Norwalk, Conn.
44	National Air Filter Co., Inc., Louisville, Ky.
240–242 341–343	National Radiator Corp., Johnstown, Pa.
472	National Warm Air Heating Assn., Columbus, O.
454	Herman Nelson Corp., Moline, Ill.
370	Newport Boiler Div. Richardson & Boynton Co., New York, N. Y.
202	Niagara Blower Co., New York, N. Y.
364	Nocare Electric Radiator Corp., New York, N. Y.
223	Ohio Electric Mfg. Co., Cleveland, O.
192	Oil Heat, 167 Madison Ave., New York, N. Y.
475	Owens-Illinois Glass Co., Toledo, O.
190	Oil Heating Institute, New York, N. Y.
53	Oxweld Acetylene Co., New York, N. Y.
357–359	Parker Appliance Co., Cleveland, O.
436	Parks-Cramer Co., Fitchburg, Mass.
64	Patrol Valve Co., Cleveland, O.
467–469	Peerless Unit Ventilation Co., Inc., Bridgeport, Conn.
87–89	Penn Electric Switch Co., Des Moines, Ia.
168	Pennsylvania Furnace & Iron Co., Warren, Pa.
254	Penn Heat Control Corp., Philadelphia, Pa.
84–86	Perfection Stove Co., Cleveland, O.
487–388	Petroleum Heat & Power Co., Stamford, Conn.
348–348A 449–449A	Pierce, Butler & Pierce Mfg. Corp., New York, N. Y.
241–243	Piqua Elec. Mfg. Co., Piqua, O.
282–284–286	Plumbing & Heating Contractors Trade Journal, New York, N. Y.
342	Powers Regulator Co., Chicago, Ill.
1006	Preferred Utilities Mfg. Corp., New York, N. Y.
234	Propellair, Inc., Columbus, O.
385	Rawlplug Co., Inc., New York, N. Y.
265–267–269	F. I. Raymond Co., Chicago, Ill.
42	Reed Air Filter Co., Inc., Louisville, Ky.
370	Richardson & Boynton Co., New York.
461–463	The Ric-Wil Co., Cleveland, O.
40	H. H. Robertson Co., Pittsburgh, Pa.
176–178	Robbins & Myers Gas Appliances, Inc., Springfield, O.
249	Rochester Circulator Sales Div., Rochester, N. Y.
67–69	Round Oak Furnace Co., Dowagiac, Mich.
447	W. A. Russell & Co., New York, N. Y.
158	Ruud Manufacturing Co., Pittsburgh, Pa.
118–120	Safety Equipment Service Co., Cleveland, O.
150	Sarco Co., Inc., New York, N. Y.
492	L. R. Shaw Refractories & Equipment Co., Cleveland, O.
276–278	H. M. Sheer Co., Quincy, Ill.
83–85	Silent Glow Oil Burner Corp., Hartford, Conn.
59–61	Silica-Gel Corp., Baltimore, Md.
121–123	Skidmore Corp., St. Joseph, Mich.
35–37	Spencer Heater Co., Williamsport, Pa.
49	Stay-Rite Co., Inc., Cleveland, O.
47	Sun Radiator Cover, Inc., Cleveland, O.
70	Surface Combustion Corp., Toledo, O.
33	Swartwout Co., Cleveland, O.
143-145	Taco Heaters, Inc., New York, N. Y.
127	Webster Tallmadge & Co., Inc., New York, N. Y.
256	Time-O-Stat Control Co., Elkhart, Ind.
188	Timken Silent Automatic Co., Detroit, Mich.
268	H. O. Trerice Co., Detroit, Mich.
486	Tuttle & Bailey Mfg. Co., New York, N. Y.
477	Uni-Flo Grille Products Co., Detroit, Mich.
51	Union Carbide Co., New York, N. Y.
485	United States Hame Co., Buffalo, N. Y.
144–146 245–247	United States Radiator Corp., Detroit, Mich.
129	Voss, Inc., J. H. H., New York, N. Y.
386	Wagner Electric Corp., St. Louis, Mo.
252	Warren Webster & Co., Camden, N. J.
360	Warm Air Furnace Fan Co., Cleveland, O.
474	Warm-Air Heating, St. Louis, Mo.
231	Watts Regulator Co., Lawrence, Mass.
262–264–266	Weil-McLain Co., Chicago, Ill.
134	W. P. Whittington, Inc., Indianapolis, Ind.
466	L. J. Wing Mfg. Co., New York, N. Y.
226	York Ice Machinery Corp., York, Pa.
91-93	York Oil Burner Co., York, Pa.
167	Young Radiator Co., Racine, Wis.
344–346	Youngstown Sheet & Tube Co., Youngstown, O.

What Home Cooling Means Now to the Domestic Engineer

By DAVID L. FISKE, Secretary, A. S. R. E.

THE term air conditioning suggests to the layman something new and interesting, which he correctly assumes is based on recent technical progress of remarkable proportions. To us more intimately connected with the subject, it suggests of course a great potential market, but more particularly a series of realignments in the refrigerating and heating trades. In a word, it brings together three once unrelated kinds of engineering—refrigerating, ventilating and heating. That the three will have to co-operate to succeed, goes without saying.

In no case is the implication of this new alignment more striking than in the domestic air conditioning job—for we can only assume that cooling of homes in summer can be, and is going to be, done in the very near future. The straws of the moment show that the wind is blowing—more of a whirlwind than anything else, perhaps. They do not show which way it is going to blow in the summer of 1932, and much less in later ones. The important thing now for the domestic engineer (heating contractor) is that he is going to be deeply concerned.

Just how the domestic heating contractor is going to be concerned is something that nobody can say. It all depends upon who makes the primary machinery to be installed, which in turn depends fundamentally upon what power will run this machinery—thus bringing some very fundamental industries into the picture. The probability is that all possible types of machines, energized in all possible sorts of ways, and distributed and installed by all kinds of agencies will be tried. And by this means the best answer or answers will be found.

In the first place we have fundamental types of cooling machines to consider—chiefly the compression machine, the absorption machine, and the "ice-water" machine, if I may so classify them. The compression

(Continued on Page 112)

"Spend for the Home in 1932"

The campaign is rolling up enlistments; here's all the material for contractors to use in putting it over

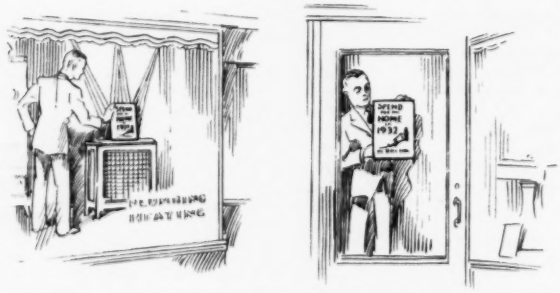
DEVELOPMENTS have been so swift since the announcement of the "Spend for the Home in 1932" campaign was launched in our issue of January 9, that nothing more than a brief summary can be given a little later in the article.

The first thing of interest to our readers is the fact that material for the campaign is now available to them at very small cost. On the next page will be seen a reproduction of the poster—and on this and the page following the poster will be found pictured a number of suggested uses.

The Posters

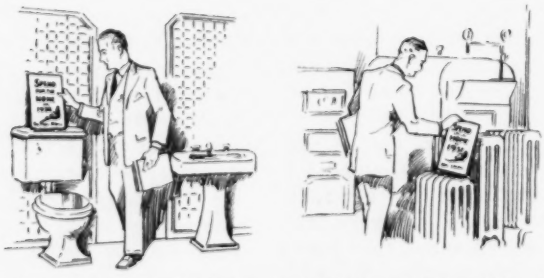
The poster has been printed on stiff cards so that it may be set up on fixtures, or in the window. It may be attached to a window with stickers, or pierced for string or other holder. It should be placed in the show room, on the door, in the display window, on truck and car windows. Perhaps your local bank, or the chamber of commerce, or your local newspaper, will permit you to display one of them in their quarters. The price in sets—based on merely caring for actual costs—is as follows:

. . . . . in the windows



Put posters in show windows, on doors where passersby will see them. One glance is enough to put over the message

. . . . in the showrooms



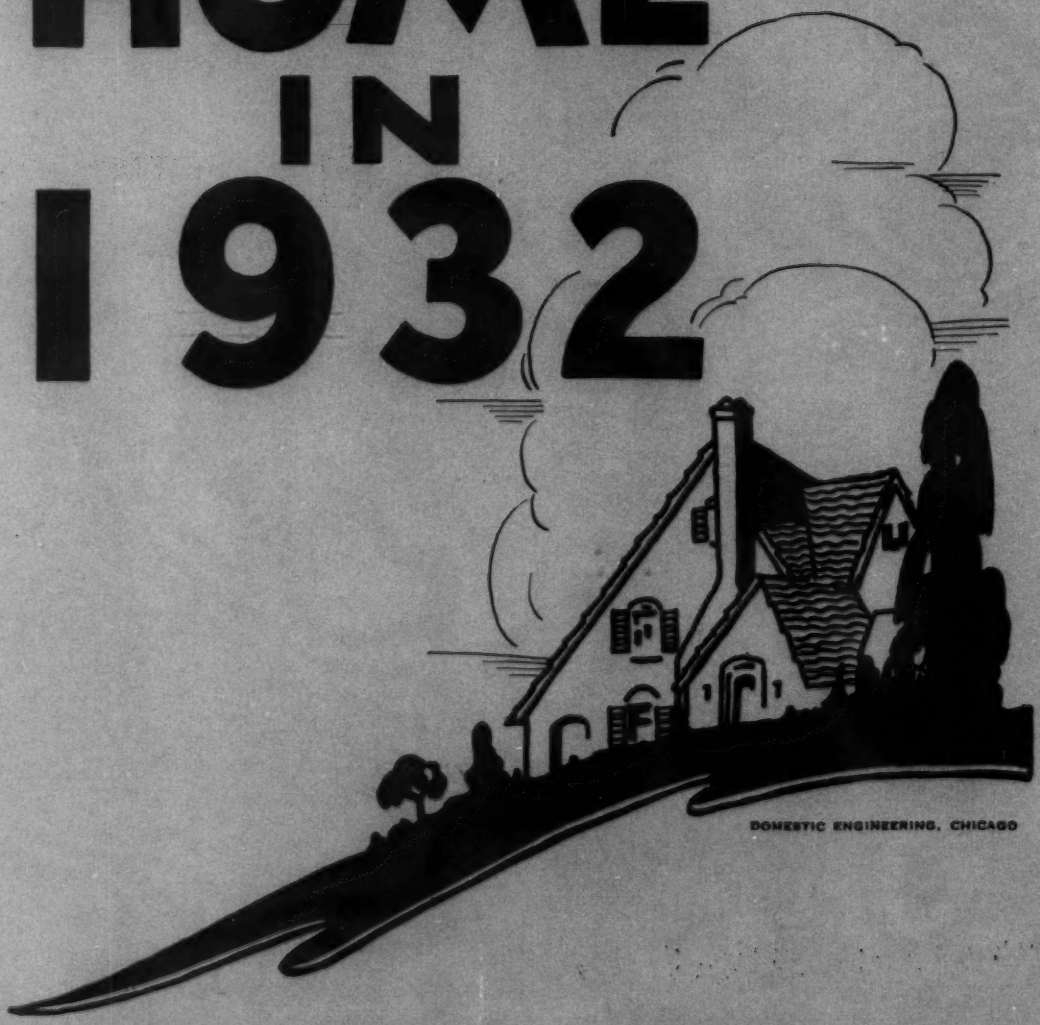
Put posters in the display room so that prospects will have the slogan driven home to them by constant repetition

SPEND FOR THE HOME IN 1932

DOMESTIC ENGINEERING, CHICAGO

Buy Plumbing & Heating

SPEND FOR THE HOME IN 1932



DOMESTIC ENGINEERING, CHICAGO

Buy Plumbing & Heating

10 posters	$ .50
25 posters	.75
50 posters	1.25
100 posters	2.00
500 posters	9.00
1000 posters	17.00

The Advertising Cuts

In the regular "Retail Advertising Service" (Pages 50 and 51) is newspaper advertising copy, sales letters and publicity items. The cut shown there, carrying the slogan: "Spend for the Home in 1932" may be secured for 35c in that size. If desired in larger size—3½" x 5½"—the cut would cost 55c. We suggest that, in addition to using this cut in newspaper advertising, it be used on circulars, and that the cut be used at the lower left-hand corner of letterheads. Those letterheads now printed can be returned to the printer, who will run them through the press again.

The Stickers

An alternative to this use on letterheads is the stickers which also bear the slogan—they are, in fact, a small reproduction in color of the poster. The size of the sticker is 1¼" x 2", and should be attached to all letters, bills and statements sent out from now on. The cost of the stickers is very moderate:

1,000 stickers	$1.50
2,000 stickers	2.50
5,000 stickers	5.00

Thus there are now available to readers of DOMESTIC ENGINEERING the posters, the slogan cuts and the slogan stickers, along with newspaper advertisements, sales letters and publicity items. In the next and future issues there will be further advertising and publicity copy built especially to push the campaign.

And now as to developments. One of the first letters received was from Fred Logan, a contractor in Houston, Texas. He asks that we send everything we have on the campaign—advertising copy and publicity items—to his local newspaper. It is his intention to work with the newspaper "to get up a local campaign." That is the spirit in which this whole movement ought to be taken—get it going in every community on a basis that will call it to the attention of everyone.

During this month—the first of the campaign—there will be a circulation of about 350,000 among business papers in the building and allied fields carrying the message—

"Spend for the Home in 1932,"

to readers everywhere in the country.

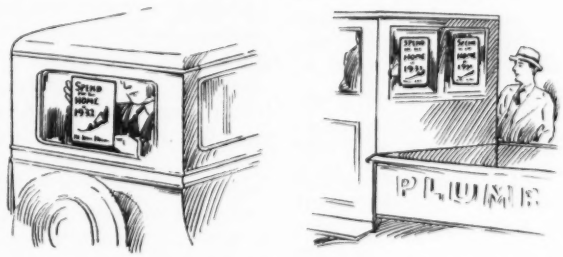
Already interest is being manifested by manufacturers who have national distribution, and advertising agencies handling such accounts are studying the plan. Last week, at the annual meeting of the Illinois Builders' League—an organization of some 3,000 members—the campaign was brought up and a strong resolution endorsing the slogan passed unanimously. An advertising weekly carried the story of the meeting of the Chicago business paper editors, at which DOMESTIC ENGINEERING offered the campaign, without strings attached to it, to every business paper having any interest in the home, and that story is producing inquiries.

It's under way—the "Spend for the Home in 1932" campaign—and it will grow in strength with each passing week. Because all those who have heard of it show an immediate acceptance. They recognize in that slogan a sound bit of advice which will enable the building industry to take the lead in the march towards better times.

Watch future issues for further material to assist you in putting this campaign over in your community. Identify yourself with it. Get the posters, the stickers, the cuts for your advertising. The cost is small, but the benefits will be great as the movement gains momentum.

To those contractors who are members of clubs, of the chamber of commerce—of any body interested in seeing business brought back to higher levels—we urge the effort to get this campaign brought up at meetings, endorsed, and actively supported in every possible way. The President's Conference on Home Ownership shows that the building industry is expected to lead the country out of its difficulties. And the "Spend for the Home in 1932" campaign is the practical program by which that task can be accomplished.

. . . . on trucks and cars



Put posters in car windows, on trucks, so they will be carried all over your community

. . . shows

Use posters at home shows and exhibits to help your sales message

President Donoghue Calls Attention to Report on Direct-to-You Competition

ATTENTION of the entire membership of the National Association of Master Plumbers is called to several important matters by President P. W. Donoghue of Boston, Mass., and the board of directors, in a message designed to acquaint the members with the position of the national officers on these several subjects.

Mail order and direct-to-consumer competition is one of the major topics discussed in the report. The nation-wide interest in this question, which is of such vital importance to the master plumber, leads us to publish below as a separate article that portion of the report dealing with this question. The balance of the message from the national officers and directors appears on Page 87.

The Report

For several years past the sales of plumbing fixtures and appliances by mail order and local direct-to-consumer concerns, without the seller of the material being responsible for the safe and proper installation of same, has been growing.

This is a subject that has been discussed for a number of years at our national and state conventions and at our local meetings throughout the country, but no definite information as to the volume of these sales was available.

Your national officers have received innumerable requests from state and local groups of master plumbers soliciting the support of the national association in their attempt to meet the competition of those concerns selling direct to the consumer.

This year the National Association of Master Plumbers, through its officers, retained the services of the Plumbing and Heating Industries Bureau of Chicago, and instructed them to make a survey of the entire plumbing industry in some city where these direct sales were a prominent factor. The city of Cincinnati, Ohio, was selected. This city was pointed out as a city where direct-to-consumer sales had made considerable headway.

This survey was made in September of last year, and it places in our hands definite information on direct-to-consumer sales.

1. It has brought out the fact that firms selling direct to the consumer without installation did a considerable amount of advertising in the daily and weekly press.

2. That they are able to purchase staple lines of plumbing fixtures and appliances at a considerably lower price than the master plumber can purchase like material.

3. It has shown that in many cases they sell staple fixtures and appliances at a lower price than the master plumber can purchase like material from wholesalers.

4. It has brought out quite clearly that they have an advantage over the master plumber in the fact that they assume no responsibility other than furnishing the fixture or appliance sold.

On the other hand, we, as master plumbers, in our method of conducting business, believe that plumbing material is of no value to the purchaser until it is properly installed and giving service, and of necessity the master plumber must receive compensation for this service and responsibility.

Your national board of directors is of the opinion that if these facts were made known to the purchaser of this material the sales would be made through the master plumber.

To maintain our position as the retail outlet of the plumbing industry we believe it is necessary for the national manufacturers of plumbing fixtures and appliances, and the regular wholesaler in our industry, to co-operate in a movement that will reduce the cost of a staple line of fixtures and appliances to the master plumber. The master plumber must also assume his share of the burden by reducing his profit to the consumer on this staple line of goods. We believe that the fixtures sold under this plan should be limited in number to a few of the staple fixtures which are now being used as leaders by the direct-to-consumer concerns; such as, a five-foot bathtub on legs; a twenty-one- inch lavatory, a wash-down water closet outfit; a forty-two-inch drain-board sink, and a small size tank gas water heater.

Your national board of directors, therefore, requests that the organized master plumbers throughout the country, through their local and zone organizations, meet with their regular wholesalers in their districts and zones and through a co-operative movement devise ways and means to meet this competition. Further, to advise the public of the fallacy of purchasing plumbing fixtures and appliances without their proper and safe installation being covered in the sale.

We are of the opinion that this can be brought about by

First: Reducing the margin of profit by all three branches of the industry on a staple line of fixtures and appliances.

Second: Advertising in the public press.

Third: A display of these fixtures in the place of business of the master plumber with prices of goods distinctly marked on same.

Fourth: Placing price tags on fixtures on display in the wholesalers' and manufacturers' show rooms consistent with present day merchandising principles.

Of necessity this movement must be handled by local groups as previously stated. We have been assured of the co-operation of the manufacturers and wholesalers in this movement.

What one firm of contractors is doing along these lines is told in the pages which follow

PLUMBING and HEATING MERCHANDISING

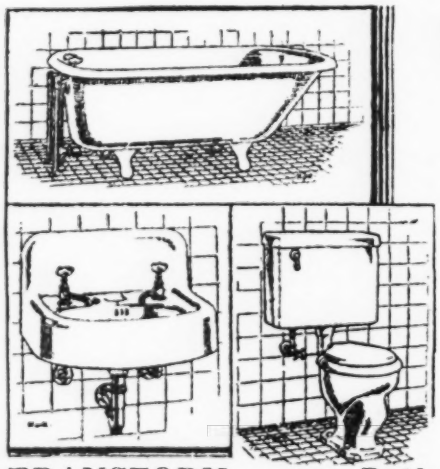
In this issue will be found newspaper advertisements and an explanation of

Competitive Merchandising

as practiced by a successful plumbing and heating firm which is meeting outside competition aggressively

New Lower Prices Buy Now

Our prices SAVE YOU MONEY and you get A-1 Merchandise



$58.39

Delivered to your door without additional charge for freight and cartage.

Beautiful bath group in durable, glistening white enamel..

TRANSFORM your Bathroom with this beautiful outfit, consisting of:

5' Enameled Iron TUB ---------- $27.00

One Vitreous China Closet Combination with Oak Seat and Cover ---------- $16.89

One 18" x 21" APRON Lavatory $14.50

COMPLETE, with faucets and all trimmings—FOR ONLY ------ ***$58.39***

(Any fixture may be had separately if desired)

Special Nov. 5, 6, 7

This Ad is worth

$1.00

in trade on any purchase amounting to $10 or more.

New Repair Service

Our Plumbers are equipped with kits containing 1400 Repair Parts. This new system eliminates trips back to the shop for repair parts, thus reducing repair costs to the minimum. Call us on your next job and let us show you.

MOERSCH and DEGNAN

112 No. 10th Street **Phone 1381**

PLUMBING, HEATING, ROOFING, SHEET METAL, WORK

Competitive Merchandising

What are plumbing and heating dealers doing to meet the inroads of competition based on price? Here is one timely example which will be followed by others in these columns

WHILE a great many plumbing and heating contractors have, for years, been following the practice of pricing fixtures in their show rooms, it is comparatively recent that there has been what might be termed a general acceptance of the idea. In addition to this fact, many contractors, in their advertising efforts, are making a drive on the basis of definitely merchandised prices.

With the heavy competition from outside sources, it would seem that

At left is one example of the type of advertising being adopted by contractors to meet outside competition

Biggest Bargains in Our History
Beautiful One Piece Apron Sink
20"x42" enameled iron with drain-board $23.50
Installation estimates cheerfully furnished.
This modern sink installed 36" from the floor will make dish-washing a pleasure instead of a back-breaking task
Apron Edge Lavatory
18"x21" enameled iron lavatory. Complete with Nickel Plated faucets, trap, and supplies to wall
$14.50
Laundry Tray
2-compartments, tub complete with fittings including swing spout faucet and steel stand.
Do not deny yourself this labor saving equipment when the price is
Only $12.85
Combination swing-spout, TARNISH PROOF CHROMIUM plated Sink Faucets—china soap dish $3.85
Combination swing-spout chromium plated, tarnish proof sink faucets—with All Metal soap dish $4.75
Double Copper Coil Gas WATER HEATERS $6.25
White Sprayed Celluloid Closet Seats complete $3.85
DETROIT JEWEL—full porcelain TABLE TOP Gas Range of distinctive character. Unusually low priced $30.00
Do not buy any other range until you have seen this.
MOERSCH & DEGNAN
112 NORTH TENTH ST.,
PHONE 1381
PLUMBING, HEATING, SHEET METAL WORK, ROOFING

It looks like the ads we've been seeing in other industries, doesn't it? And it's selling merchandise

One of the most efficient jobs being done in this direction just now forms the material in this feature section. Moersch & Degnan of Escanaba, Mich., have vigorously adopted the idea of clear pricing, and indicate that they have found the practice a good one from the standpoint of results.

We reproduce in this article a number of newspaper advertisements this firm has run. Note the manner in which pricing is handled—it is in line with what other retailers have always done. It gives the public an opportunity to do its "shopping" in the advertisements, to compare prices, and to note that a local firm, with all its reputation and stability is prepared to offer sound values within the reach of all.

Here is what James G. Degnan has to say about their present merchandising program:

"We are highly pleased with the results thus far obtained in our efforts to meet chain store competition. We find that many of our friends who have been holding off on necessary plumbing improvements in their homes are now having the work done as they feel our prices are within their means.

this practice is necessary. When an industry is up against competition which bases its merchandising on pricing, that industry must follow suit. Otherwise it gives the impression that the prices offered by competition are not to be met in its own outlets.

Like the advertisements, the store is laid out to make sales. Note the display of merchandise down the middle of the store

Why It Succeeds

"The idea has been prevalent that all plumbing supplies and installation costs were exorbitant and people have either refrained from calling a plumber or they have gone to a local chain store. We believe that we are remedying this feeling by showing the public that we give them A-1 merchandise and first class installation, according to our city code, for the same (or less) money as our competitors.

"In addition, we have found that our advertising has brought us many new customers from surrounding territories. These people invariably would go to a hardware or the local mail-order house which is located only two blocks from our place of business. These purchases have been for cash and the articles (faucets, laundry trays, sinks and closets) have been taken out by the purchasers themselves, thus relieving us from delivery costs.

"We feel, therefore, that we have taken a step toward correcting public opinion that plumbing contractors are 'higher priced' and, as mentioned before, we are pleased with the resulting amount of business which we trace directly to our advertising.

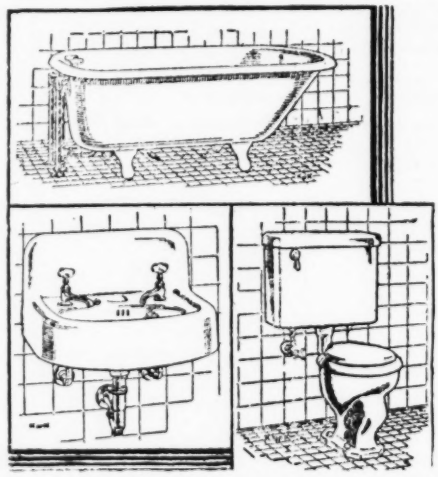
Response to Advertisements

"With reference to the response to our advertisements, would say that we accredit $1,700 of our sales from October 8th to November 20th, directly to these advertisements and in the majority of instances, the sales have been right at our store. Eight of these sales were to people from neighboring villages who had never patronized us before. One party purchased a closet combination, another a laundry tray and another a $35 sink instead of the $17.75 sink which we had advertised. We sold not only two complete plumbing jobs to persons in a neighboring town (where there are two plumbing shops) but also a warm air furnace, which latter sale resulted entirely from these people being in the store to select their plumbing fixtures.

Large advertisements like this, with prices prominently displayed, hold their own with competitive copy

TODAY
Escanaba Day

We Feature These Plumbing Bargains



$58.39

Complete

The Beautiful Bathroom Group, complete with all necessary Fittings.

Fixtures also sold separately if desired.

Laundry Tray

$12.85

Two compartments, tub complete with fittings, including steel stand and a combination swing spout faucet $12.85

Kitchen Sink

$17.75

20"x42' Rolled rim—one-piece Kitchen Sink with enamoled iron drainboard — a wonderful val. at only $17.75

(faucet not included)

Special
Sink Faucets

Combination Chromium Plated Sink Faucet, China Dish

$3.85

All Metal, Chromium Plated Sink Faucet $4.75

Double Copper Coil Gas Water Heater $6.25

30 Gallon Std. Hot Water Tank $7.85

White Closet Sprayed Celluloid Seat $3.85

Detroit Jewel Table Top Gas Stoves $34.50

Tank Balls, Guaranteed, 3 yrs., each ... 50c

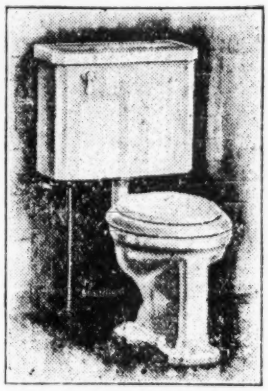
Moersch & Degnan

PLUMBING, HEATING, ROOFING, & SHEET METAL WORK

112 No. 10th St. **Phone 1381**

Look at These
Money-Saving Values

New "Modernus"



Here is a thoroughly modern closet to meet modern requirements. Straight front design Tank top surface is flat with a rim, providing useful place for toilet articles, etc.

INTRODUCTORY PRICE — Complete with "CHURCH" White Sheet Celluloid Seat..... **$26.50**

Small installation charge

KITCHEN SINK

20" x 42" rolled rim, one-piece Kitchen Sink with drainboard— only **$17.75**

GRANITE LAUNDRY TRAY

2 compartments — complete with combination faucet and steel stand **$12.85**

Modernize your laundry now and make washdays easier.

Pedestal Lavatory

20" x 24" best quality enameled iron lavatory **$16.95**

Never before obtainable at this low price.

VITREOUS CHINA CLOSET COMBINATION

Complete with Golden oak seat

$16.95

Unbeatable Value

Small installation charge
Ask for quotations.

SINK FAUCETS

Combination swing spout Chromium plated—with china soap dish **$3.85**

Double Copper Coil GAS WATER HEATERS

$6.25

Wonderful heater at this low price

Moersch & Degnan

112 North 10th Street—Phone 1381

PLUMBING HEATING SHEET METAL WORK

"Local interest was aroused with our first advertisement. According to our records, six persons came in the first day, other orders coming by 'phone. The day we advertised the $58.95 bathroom, one person who had not been a customer of ours came in and ordered complete bathroom installation in one of his houses. He also bought a $19 medicine cabinet and a $125 gas stove—a total of $335.

"In several other cases we have sold *higher* priced articles to people who were attracted to the store to purchase the cheaper article listed in our advertisement. It may also interest you to know that we have advertised *quality* goods for years and we have never been able to trace any direct sales to any one, or group of advertisements, nor has the public been attracted to our showroom as it has since we have featured competitive priced merchandise.

Selling a Repair System

"The repair kit system which we have installed has enabled us to develop a nice business in the way of selling small accessories such as china caps, china handles, seat bumpers, chain and stoppers and various other small items which our mechanics have with them on every job. We have instructed our journeymen to tactfully suggest small improvements or repairs which they see are likely to be needed in the near future and in the majority of instances our customers have gladly consented to the additional minor replacements as they feel that in this way they save a return trip later on. In this way we use more material on the job and when the bill comes around, the labor charge does not seem so enormous in comparison to the amount of material used, as is so often the case when small repair jobs are done.

"Another valuable feature is that these repair kits contain materials to take care of all ordinary repair jobs encountered and, regardless of the kind of faucet to be repaired, we are thoroughly prepared to do the work

Another of the ads which invite the public to think of quality merchandise at prices that are interesting

Another view of the inside of the store showing the merchandise display as the customer sees it

without a return trip to the shop (a fact our customers appreciate, realizing that it saves them money). The same is true of ball cock gaskets, float rods, bath tub stoppers, bibb packings of every size, washers, screws, nuts and bolts. In other words, the kit is a little store taken right into the home.

"Further, we find that the selling experience which our men have derived from suggesting these small replacements, has given them the incentive for larger sales, and it is our experience that many replacements for closet tanks, sinks, bathtubs, etc., have resulted through their suggestions.

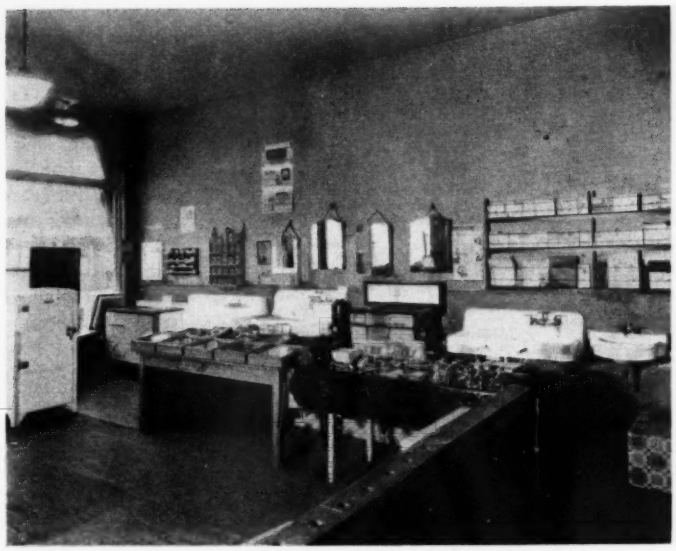
"The most profitable articles in the kit are the enamel cleaner, closet bowl cleaner and drain pipe solvent. Our men demonstrate these cleaners at the homes where they are working and we have built up a nice business in this line. In one home where we installed five bathrooms, we sell enamel cleaner by the case. Incidentally, the demand for these articles brings people into the store."

The Firm's Background

The firm of Moersch & Degnan started business in April of 1922. Mr. Moersch had had seventeen years' experience in heating, and allied lines. Mr. Degnan had had eleven years' experience in plumbing. Thus clients of the firm are guaranteed ample experience in all of the

A New Plumbing Service
1400 Repair Parts In One Kit
Some months since, we installed the (———) system of repair service. This System literally takes the Plumbing store RIGHT INTO YOUR HOME. Whatever your requirements may be, for (——— , ——— , ——— , ——— , ——— , ———) or any Special Fixture, OUR PLUMBERS are equipped with a COMPLETE SUPPLY of material to take care of ordinary repair jobs.
This Week's Specials
(———)
Porcelain Polish, reg. 40c value, 3 cans for 99c
(———)
Bowl Cleaner, reg. 40c value, 3 cans for 99c
(———) Waste
Pipe Cleaner, reg. 75c value, Special 60c
30% DISCOUNT, on Genuine (———) Venetian-type Mirrored Medicine Cabinets.
WHITE SPRAYED CELLULOID CLOSET SEATS, complete $3.85
Moersch & Degnan
112 North 10th St. Phone 1381
PLUMBING, HEATING AND SHEET METAL WORK

Merchandising the new plumbing repair service kit, which has brought a nice volume of small sales to this firm



Looking across the store at the wall display. Note the rack for advertising literature

In following issues, we will have further examples of what plumbing and heating contractor are doing to meet outside competition. Alert merchandisers have recognized the need for meeting this type of selling ag-

lines handled, with expert service based on that experience.

The firm engages in all kinds of heating—hot water, steam, and warm air. It is also prepared to take on any kind of sheet metal job—tin and copper work of all descriptions.

In line with its alert merchandising ideas, the firm handles, besides plumbing and heating staples, a group of specialties which give it the status of a real dealer outlet. An oil burner, a stoker, a gas stove, gas water heaters, electric refrigerators, radiator covers—these products all contributing to levelling the sales volume throughout the year and offering just so many more opportunities of interesting the public in the service the firm has to offer.

Readers of DOMESTIC ENGINEERING will without doubt find the material in this section of prime interest and value. Competitive conditions are putting a demand on plumbing and heating dealers for an aggressive merchandising program. Many contractors are meeting that demand; and material such as is published in these pages will give many more a practical slant on modern, competitive merchandising methods.

Here is another ad selling the new repair service, without reference to merchandised items, as on the opposite page

A Plumbing Service

that reaches New Heights of Efficiency

The (_____) system of repair service literally takes the Plumbing store ***Right Into Your Home.*** Whatever your requirements may be for (_____, _____, _____, _____, _____) or any special fixture or repair part ***Our Plumbers*** are equipped with a ***Complete Supply*** of materials to take care of virtually all repair jobs.

THE (_____) KIT CONTAINS 1400 DIFFERENT REPAIR PARTS—eliminating almost entirely the necessity of a return trip to shop for correct parts.

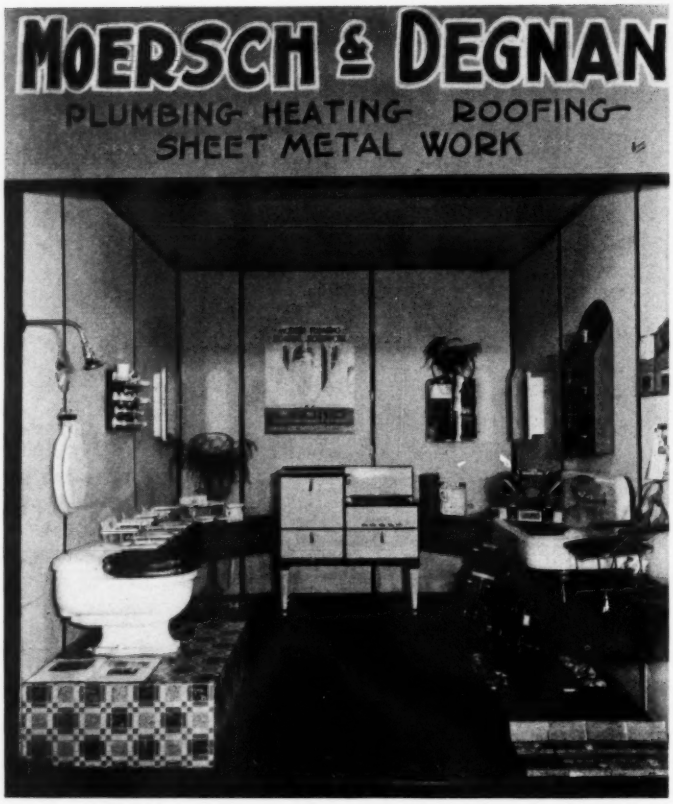
A Service That Saves Time And Money For You

Moersch & Degnan

112 North 10th St. Phone 1381

PLUMBING, HEATING & SHEET METAL WORK

An exhibit at a fair brought prospects



the face of difficult competition that is effective.

The results achieved by Moersch & Degnan prove that the public will read and remember this type of copy—and give the advertiser a chance to sell something better.

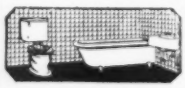
gressively, and some of the examples of competitive advertising and selling show the results of a careful study, as is true of those in this section. These ads show that the contractors in this field are capable of doing a job of merchandising in

Below:
A half-page ad that is strong in competitive values

Plumbing Fixtures at Unbeatable Prices!

Through the medium of unfair sales tactics many people have been sold the idea that Plumbing Fixtures from a recognized dealer are necessarily high and this announcement is produced not only to *REFUTE THE CLAIM BUT AS A CHALLENGE TO ANYONE TO BEAT THE VALUES ADVERTISED HERE. THIS IS NOT A SALE,* but everyday values featured by us – *WHY PAY MORE WHEN QUALITY SUCH AS WE FEATURE CAN BE HAD for LESS! INVESTIGATE!*

Bathroom Complete



$56.30

Includes One Vitreous China Closet Combination with golden oak seat and cover $16.80
One 18"x24" Rolled rim Enameled Iron Lavatory Complete with Nickel plated faucets, trap and supplies to wall $12.50
One 5' Enameled Iron Bath tub on legs complete with fittings $27.00
Total bathroom, COMPLETE $56.30

Closet Seats

White Sprayed Celluloid Closet Seats—complete

$3.85

An amazing value at this low price. Easily and quickly installed on any type of toilet

CLOSET SEATS

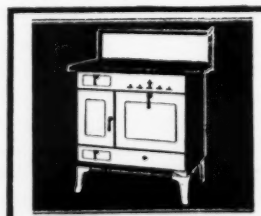
Better quality, nationally advertised "CHURCH" WHITE SHEET CELLULOID closet seat, equipped with tarnish proof CHROMIUM plated Hinge, NOW ONLY $5.00

SPECIAL OFFER

Granitine
Laundry Tray

Here's Value never before offered at this low price! Take advantage of this offer and save yourself time and steps on washdays!"

$12.85



This Modern Gas Range $39.00

Terms Arranged

The newest offering of the DETROIT-JEWEL STOVE COMPANY a tall porcelain table top gas range of distinctive character and unusually low price. Don't buy any gas range until you see the Detroit Jewel line

Genuine folding Little Toidey Baby Seats

These seats clip securely over regular toilet seat, and are obtainable in four colors, white, ivory, pink and blue. Now

$2.85

Regular price $4.50
An ideal gift for Baby

Sink Faucets

Combination Swing Spout, tarnish proof Chromium Plated Sink Faucets—with China soap dish

No one has ever offered for $3.85 a faucet value equal to this.

Kitchen Sinks

20"x15" Rolled rim one piece kitchen sink with enameled iron drainboard—a wonderful value at only

$17.75

(faucet not included)

Combination Swing Spout

Tarnish proof Chromium Plated Sink Faucets, Gooseneck pattern, with All Metal Soap Dish.

A real value at our new Low price $4.75

Swing Spout Double

Laundry Tray FAUCETS

You've never seen an equal value at $2.50

Five Foot Enameled Iron Recess

Built-In Bath TUBS

Only $45.00

Hot Water Tanks

Standard Electric welded 30 gallon capacity. Only $7.85

Double Copper Coil *GAS*

Water Heaters

Sale price $6.25

CHECK THESE VALUES AGAINST THE SO-CAL' 2D CUT RATES AND YOU'LL FIND THAT WE NOT ONLY GIVE YOU BETTER QUALITY BUT SAVE YOU MONEY TO BOOT!

112 North Tenth St., Escanaba Phone 1381

MOERSCH & DEGNAN

112 North Tenth St., Escanaba Phone 1381

PLUMBING HEATING SHEET METAL

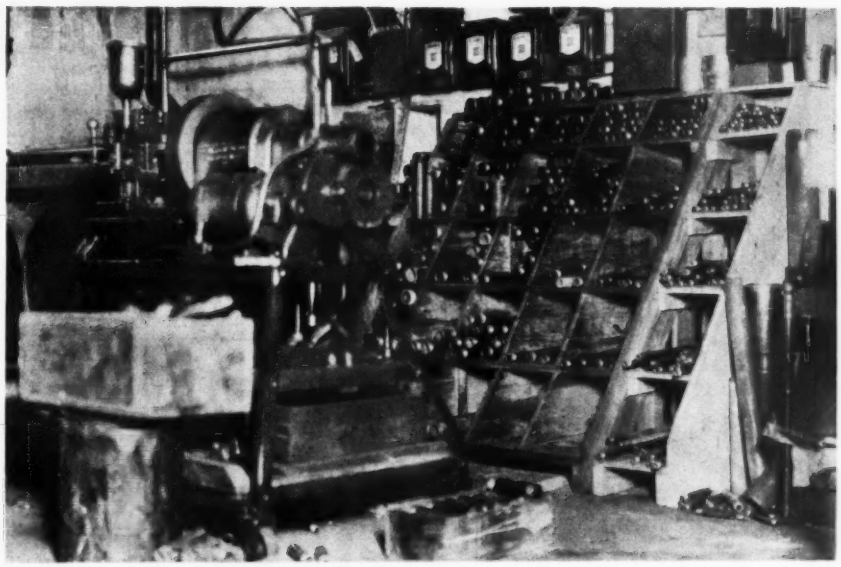


Fig. 1—The view at the right shows the corner of Mr. Toussaint's shop where pipe threading is done. The item of particular interest is the pipe rack, which has been designed to show at a glance the number and length of the nipples on hand

Two Efficient Methods

Worked Out By A Contractor

THE importance of efficient methods cannot be overemphasized. Unless care is exercised throughout the entire conduct of business, needless waste will occur. If this is not covered by sufficient margins applied to the jobs in work, direct losses will be sustained. On the other hand, if it is covered, the figure for the work will run high as against the figures submitted by contractors operating efficient organizations with the result that the chances of obtaining the contract at the start are lessened. Therefore, under any circumstances, if a contractor desires to remain in business and operate at a profit it is necessary that he reduce to an absolute minimum the many waste possibilities which are ever-present.

The accompanying illustrations indicate some of the practices which have been developed for efficiency in the shop of A. M. Toussaint, Inc., of Madison, Wisconsin. In the first place, everything is kept exceptionally clean and orderly. The rack shown in Fig. 1, for nipples, is well adapted to keeping the pipe threading portion of the shop in shape. Note that the bins are arranged so as to accommodate the pipe both in regard to size and length. The smaller sizes are stocked in the right hand tier and they increase regularly to the left with the largest size in the left hand tier. Since the back of the rack is vertical, the sloping front makes it possible to stock the nipples according to their length, the shortest ones being at the top and the longest ones being at the bottom. The advantage of this is that it provides a visual inventory of the stock of nipples on hand. The view in Fig. 2 shows a section of the wareroom. All of the finished fittings for both plumbing and heating work are kept in these cabinets. Locks are fitted to the doors and no item is removed from a case unless an order is made out charging it to some particular job. In the event that a fitting or piece of trim is ruined on the job, with this system it is not possible for the one doing the work to dispose of the damaged item and quietly replace it with a new one from stock. In order to obtain a new one, the old one must be returned, it must be written off as a loss on the job in question and an order for the replacement is required. The contents, of each case, are indicated on the doors.

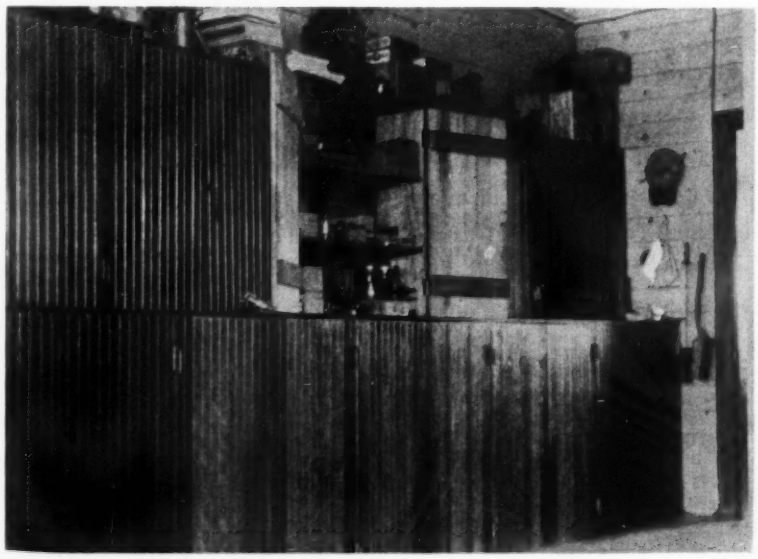


Fig. 2—At the left is another view of the shop where the stock is kept. Here everything is stored in the locked cases, each compartment being the same size as the one which is shown open

RETAIL ADVERTISING SERVICE

ON these two pages will be found copy for use in connection with the "Spend for the Home in 1932" campaign, announced in the last issue of DOMESTIC ENGINEERING. Note that the slogan cut bears the words "Buy Plumbing and Heating" at the bottom.

WE must spend to live. But, this year, let's spend wisely on the home. This will not only be in the nature of an investment for ourselves, but it will stimulate every other industry. So — buy plumbing and heating if you need it. If not—then "Spend for the Home in 1932" for the other things that are always needed.

(In this space Your Name, Etc.)

For one-column space

Dear Sir:

Experts tell us that every dollar spent in the building industry does its share in fifty other industries. They feel that if this "key" industry can be stimulated, the whole country and every line of business will benefit.

There is a further argument for spending on the home. Such expenditures actually create permanent wealth and thus are investments. Money spent on the home produces a value that lasts--in contrast with the kind of expenditures which need heavy additional spending to keep what is bought in use.

Therefore we are urging all our good friends and customers to "Spend for the Home in 1932." If they have plumbing and heating needs we shall be glad to serve--but we nevertheless urge spending on the home this year, for services of every kind.

An increase in building activity--whether in the form of remodeling or of new building--will help the railroads, will alleviate unemployment, put money into circulation which will purchase necessities of food and clothing, and speed up the entire distribution machinery of the country.

So--whether it's to put in a new bathroom, or to repair the out-of-order door bell, paint the house or refinish the floors--in the light of the logical good that will come to the country, we urge this idea: "Spend for the Home in 1932."

Very truly yours,
HARRY BROWN

A plumbing sales letter

EXPERTS tell us that if the building industry gets under way, the effect will be felt throughout our whole business fabric. That is why we urge you to "Spend for the Home in 1932." Buy plumbing and heating—or any of the other things that will give you more comfort and convenience in your home. Such spending is wise—it creates permanent values.

(In this space Your Name, Etc.)

A two-column newspaper ad

Electrotypes of the cut shown on these two pages may be had for 35c each. They can be used indefinitely in every form of advertising.

Write also for prices on the black and orange poster carrying this slogan—get back of the movement to increase business this year.

FIFTY-SEVEN VARIETIES OF INDUSTRIES WAIT ON BUILDING

"Something like fifty-seven industries," says Harry Brown, local plumbing contractor, "will get into motion when the building industry speeds up its work.

"With this fact in mind, I am getting squarely back of the movement to 'Spend for the Home in 1932.' And that is no narrow selling idea, meant to increase plumbing work only. I am urging all of my customers to have those things done for the home that always need doing—whether they're in my line or not. Economic experts say that key industries, like the building industry, must lead us out of the low levels of business.

" 'Spend for the Home in 1932.' I'm going to do it as a means of stimulating every other line of business in town."

Hand this publicity item to your newspaper

THE copy on this page is also given over to the "Spend for the Home in 1932" movement. Everything that any contractor can do to push this campaign along will be of benefit to him. Let's make this slogan the dominant one in 1932.

A dollar spent on the home is a stimulus to something over fifty industries. That's why we are urging the "Spend for the Home in 1932" movement. If every home owner in this community will have done one or more of the things that always need doing around the home, every line of business will feel the results, because the building industry is a "key" industry—many other businesses serve it. Therefore, stimulation in the building field stimulates the other lines of business. "Spend for the Home in 1932" and help lift business out of its present low levels.

(In this space Your Name, Etc.)

A two-column newspaper ad

PATRIOTISM, PLEASURE AND NATIONAL PROSPERITY

"I conceive it a patriotic duty," says Harry Brown, local heating contractor, "to get squarely back of the 'Spend for the Home in 1932' movement that is sweeping over the country. And it will not only be a duty—it will be a pleasure. First, because it will bring more comfort and convenience to the home; second, because it will have a definite effect on national prosperity.

"Experts tell us that general business revival awaits the revival of the building industry, because it is a 'key' industry served by many others which will also benefit.

"Let every home owner support the movement—and we shall see definite betterment during this new year."

Give this publicity item to your local newspapers

Get your windows into this "Spend for the Home in 1932" Movement

Write us for details concerning the beautiful black and orange poster carrying the slogan, which is being produced for your use. You'll find further information in other pages of this issue.

CONSULT your banker, or your business adviser. He will tell you how experts arrive at the conclusion that money spent for the home stimulates other industries. If home owners—and apartment dwellers—buy those things needed for the home this year, we shall see a distinct improvement in every line of business. "Spend for the Home in 1932"—it will be the greatest help the individual can offer the country.

(In this space Your Name, Etc.)

A single column ad

Dear Sir:

By now the process of readjustment has reached every man, woman and child in our country. Prices have been levelled off, and the country awaits only the proper word to release the spending power that is being held in reserve.

I believe firmly that the "Spend for the Home in 1932" movement is the proper word. It means wise, sane investment of money in permanent value and in the creation of wealth and work for the country. It has nothing hysterical about it--because the man who puts money into his home or apartment has bought something of permanent value.

Look over your home or apartment now --have done those things that need doing. Personally, I regard it as a patriotic duty and pleasure because here is something that every individual in the country can do--and something that will immediately make itself felt in a general bettering of conditions.

As a business man I am urging the value of this movement on my customers--and as an individual I intend to do my share to help along what I believe to be an economically sound and productive movement.

I shall be glad to talk over any problems which we might help to solve--although I am writing primarily to suggest the doing of any of the things around the home which will contribute to speeding things up.

Very truly yours,
HARRY BROWN

A heating sales letter

Editorials

Off to a Flying Start

THE "Spend for the Home in 1932" campaign is already a thing of national interest. Launched by DOMESTIC ENGINEERING, and made available to every one interested in the building or home field, in this, its first month, it has been so vigorously sponsored that it will reach a total of nearly 350,000 readers who are dealers in products going into building. This count covers only those papers actually in the building field which have gone ahead in their own columns to push the movement, with one exception—a furniture journal.

What that circulation will be, now that letters have gone to all papers in the United States who are or should be interested in helping their readers to increase business in 1932, we can not estimate as yet.

The important fact is that no business paper, to which this campaign has been presented, has turned it down. On the contrary, every one to whom it has been explained has seen immediately the timely value.

DOMESTIC ENGINEERING has already had its first requests for posters, cuts, advertising copy, stickers, and anything else that is produced to help the plumbing and heating contractor to put over the movement. Other papers are reporting inquiries from their fields.

Further details will be found in other pages in this issue. We cite these results here briefly because they show just how hungry the whole building world was for something that would win public response, because soundly planned and based on reason.

Do not confuse this "Spend for the Home in 1932" campaign with any of the many "buying" campaigns which have been staged all over the country. Buying is one thing—and when you urge a man to buy without giving him anything but a general reason for it, you leave him wondering why he should.

But that little phrase—"for the Home"—that is the touch of reason and sentiment combined, which is putting this movement over with such immediate acceptance. Because when you advise an individual to spend for his home, you are giving him sound advice. He is creating real value—usually in excess of the actual money outlay involved.

Get back of the campaign in your community. You are going to see it generally adopted, and will want to identify yourself with it.

The Gas Appliance Merchandising Situation

NOW is the best possible time for master plumbers to unite in their efforts to clear up the intolerable situation in the field of gas appliance merchandising. The utility, with a monopolistic franchise, is beyond the reach of competitive restraints, such as apply to the average business. Given a business by government, they have made use of it to reach over into the field of merchandising, upon terms with which the independent retailer can not compete.

But the utilities are aware of several other considerations just now which can be effectively used to win from them a return to a proper conception of their business. They have no desire to see anti-utility legislation spread all over the country. And they want friends among the people of our country so that such investments as they have made in the field of power will not be subject to radical governmental theories.

Besides, thoughtful utility men seem to feel that they would like to get out of the merchandising side of the business.

A reasonable program—and we feel that the principles announced in this paper governing utility-dealer merchandising relations are reasonable—pushed firmly, but without haggling, has a chance of success just now. Dealers should not be satisfied with a plan merely because it puts a few dollars in their pockets. The plan should protect their future interests—and the interests of every fellow worker in their field. If it limits their choice of merchandise, if the benefits are limited in an unwise way by favoritism among competent dealers, ultimately the plan will fail and will do more harm than good, both to the utility, the favored dealers and the public, as well as to the other dealers.

Think—Don't Worry

WE SPOKE of this idea once before—but it's worth repeating in 1932. "I'm trying to think, instead of worrying," said a business acquaintance. Money will be spent this year—people must live, and there will be some money spent for things that are not classed as fundamental needs. The thinking retailer will go after his share of that surplus over necessities. Some companies among manufacturers, wholesalers and retailers made progress last year; they will do so this year, because they are thinking. Worry is a cord that binds our faculties.

About Folks You Know

Supply News

What's Doing In Business

For Manufacturers, Wholesalers and Salesmen

Spencer Heater Co. Representatives Hold Annual Sales Meeting

Sales representatives of the Spencer Heater Co., a division of the Cord Corp., met in Williamsport, Pa., January 19, 20 and 21 for their annual sales conference. One of the most successful years in the company's history was reported.

The meeting was devoted principally to outlining plans for increasing sales still further in 1932. It also afforded salesmen an opportunity to see the company's new products in operation in the testing laboratory.

E. L. Cord, president of the Cord Corp., was one of the principal speakers at the conference. J. A. Waddell, chief engineer, explained the technical features of new developments. F. W. Earnest, Jr., assistant sales manager, outlined selling policies for 1932.

C. N. Tull, president of Spencer Heater Co., acted as toastmaster at the annual banquet on January 21, introducing W. H. Beal, president of Lycoming Mfg. Co., and other officials of both Spencer and Lycoming. H. N. Tolles, of Chicago, was the principal banquet speaker.

◆

Oil Burner Firm Takes Exhibit Space in Portland

The Automatic Burner Corp., of Chicago, Ill., leased ground floor space in the Plaza building, Fourth and Main streets, Portland, Ore., for display and demonstration purposes. W. L. Beyer is Portland manager.

N. P. S. A. Changes Dates and Place for Annual Convention

Announcement has just been made by the National Pipe and Supplies Association that its annual convention will be held at Pittsburgh, Pa., on May 9, 10 and 11, 1932. Convention headquarters will be established at the William Penn hotel.

It was originally planned to hold the convention at White Sulphur Springs, W. Va., during the month of April, but the executive committee felt that Pittsburgh would be a more convenient meeting place for the majority of members, and that consequently a larger number of persons would attend the convention.

The executive committee is at work on a program which will make merchandising, the display of merchandise and sales education the keynotes of the convention.

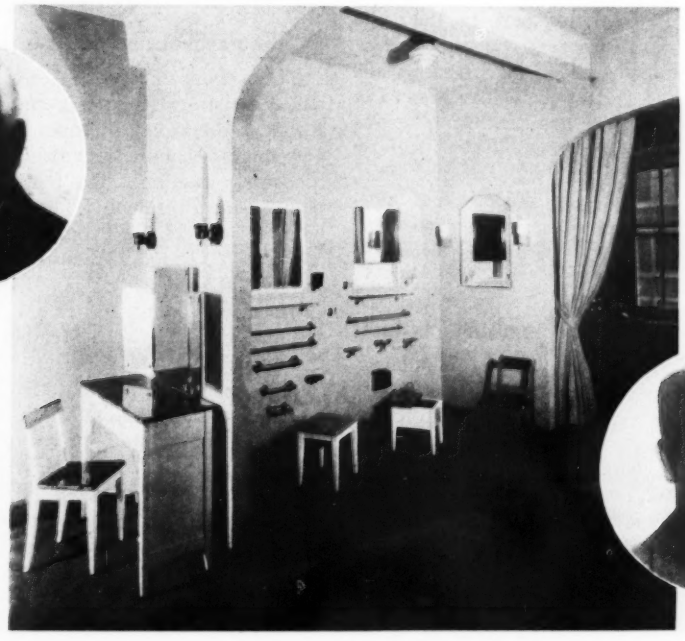
◆

Conant Bros. Co. Opens New Display Room in New York City

Conant Bros. Company, Somerville, Mass., has just opened the attractive new display quarters pictured below, at 6 East 45th street, New York City, where the company's line of cabinets, mirrors, accessories and furniture for the bathroom are permanently displayed.

A. J. Miranda has been appointed manager of the company's New York City branch. He was formerly export manager for the J. L. Mott Iron Works and

A. J. Miranda (above), New York branch manager, and I. J. Miranda (right), assistant manager



A section of the new display room of Conant Bros. Co. at 6 East 45th street, New York City

was associated with that company for seventeen years. He will handle both export and domestic sales for Conant Bros. Co. Assisting Mr. Miranda in his new duties is his son, I. J. Miranda. Roland T. Parker is president of the company, and George E. Darling, treasurer.

◆

Buys Rule Manufacturing Business

Stanley Tools, New Britain, Conn., has purchased the rule manufacturing business of Hiram A. Farrand, Inc., of Berlin, N. H., according to an announcement by G. M. Fletcher, of the Stanley Rule & Level Plant. Transfer of machinery and equipment has already been completed.

◆

Will Represent Cuno Engineering Corp.

The Sheffler-Gross Co., Inc., sales engineers of Philadelphia, Pa., has been appointed sales representative in the Philadelphia district for the Cuno Engineering Corp., of Meriden, Conn., manufacturer of self-cleaning filters.

◆

Kansas City Sales Firm Now in New Quarters

I. L. Roark Co., of Kansas City, Mo., has moved its office from 207 Mutual building to 2014 Wyandotte street, Kansas City. The Roark company is sales representative for Josam Mfg. Co., Michigan City, Ind., Sloan Valve Co., Chicago, and Duriron Co., Inc., Dayton, Ohio.

◆

Babcock & Wilcox Co. and Fuller Lehigh Co. Consolidate

The Babcock & Wilcox Co., New York city, has announced a further consolidation of the resources and facilities of the Babcock & Wilcox and the Fuller Lehigh organizations, effective January 1. The sales offices of the two companies have been combined and all business heretofore carried on separately or jointly by these companies will be done in the name of The Babcock & Wilcox Co., through its district sales offices.

The Babcock & Wilcox Co. purchased, in 1926, the Fuller Lehigh Co., manufacturers of pulverized fuel equipment, and to this line was added the furnace walls formerly manufactured and sold by the Bailey Meter Co.

In the early part of 1931 the manufacturing operations of the Fuller Lehigh Co. were combined with those of The Babcock & Wilcox Co. at its Barberton, Ohio, works. At that time the engineering, erection and service departments of the two companies were also combined, and the executive offices were transferred to New York city.

◆

Reaffirm Standard on Porcelain Plumbing Fixttures

The Department of Commerce, Bureau of Standards, Washington, D. C., has just announced that in accordance with the recommendation of the standing committee, the existing standard on porcelain (all clay) plumbing fixtures is reaffirmed without change for another year beginning July 1, 1932, or until authorized revisions are duly made by the industry.

Under date of December 10, the Bureau of Standards released a report summarizing the results of a survey undertaken in co-operation with manufacturers of these fixtures to determine the adherence, effectiveness, or benefits resulting from the establishment of the commercial standard entitled "Staple Porcelain (All Clay) Plumbing Fixtures, CS4-29."

◆

Enters Wholesale Business in Long Island

Charles Englert, formerly associated with Saul Rendelstein, Inc., plumbing and heating wholesale firm of Brooklyn, N. Y., has engaged in the plumbing supply business under his own name. Associated with him in the new venture will be his son. The new firm's headquarters will be at 554 Coney Island avenue, Long Island. The company commenced operations on January 1.

◆

Milwaukee Valve Co. Moves Chicago Office

The Milwaukee Valve Co., of Milwaukee, Wis., has moved its Chicago, Ill., sales office to Room 718 in the Builders' building, Wacker drive. J. G. Gregory is manager of the company's Chicago office.

◆

Distillate Burners Association Meets at Worcester, Mass.

The manufacturers of distillate oil burners representing with one exception the Eastern part of the country, held a meeting at the Bancroft hotel, Worcester, Mass., recently. The meeting was opened by the president of the association, R. M. Sherman of Hartford, Conn., president of the Silent Glow Oil Burner Corp., who outlined some of the accomplishments of the association since its last meeting.

At a discussion that followed the dinner, ways and means were considered to enlarge the sale of distillate oil burners in every territory. A. W. Clark, Managing Secretary, American Oil Burner Association, Dealer Division, spoke on the activities of the dealer division with particular reference to the work accomplished at the state capitol in Massachusetts in the revision of the fuel oil rules as they affected the installation of power and range burners.

◆

Illinois Chapter Votes Change in Constitution

The Illinois Chapter, American Society of Heating and Ventilating Engineers met for dinner in the Celtic Room of the Hotel Sherman, Chicago, on the evening of December 14, and adjourned later to the Grey Room for a business meeting. The following committees were appointed by President J. J. Aeberly: Better Relations Commission: H. G. Thomas, chairman; R. B. Hayward and H. R. Linn. Membership Commmittee: C. W. Deland, chairman; C. H. Blanding and J. J. Hayes. Legislative Committee: H. M. Hart, chairman; E. V. Hill and E. P. Heckel. Member Nominating Committee, National: A. B. Martin.

Mr. Aeberly stated that the next question before the Chapter was the adoption of the revised constitution. He suggested a vote be taken on the revised constitution as submitted and then unless two-thirds of the votes were cast in favor of adoption there would be no necessity of submitting the proposed amendments. Mr. Good said there were two changes suggested by Mr. Hutchinson, which the committee would like to have made. The changes were the omission of the word "Associate" in the third line of section two or Article 3 and the substi-

tution of the words "Publication Committee" for the word "Council" in the fifth line of Section 6 of Article 6. These changes were necessary to conform to the National Constitution.

In the vote that followed, twenty members were in favor of the change and eight were opposed to it.

Mr. Hale read from the transactions of the Society, the action taken in permitting the formation of local chapters and the approval of the Illinois Chapter in December, 1906. This meeting of the Chapter was therefore the 25th birthday of the Illinois Chapter.

Mr. Aeberly introduced Mr. Howatt as technical chairman of the discussion of Code Making. Mr. Howatt in his preliminary remarks gave the definition of a code and reasons for the development of codes and how public demand, future growth and future development in the art must be anticipated, and cited various codes drawn up by the American Society of Mechanical Engineers, and the American Society of Heating and Ventilating Engineers.

Arnold H. Goetz was the first speaker on the side of standard requirements and told how in other lines standard rather than specific requirements were set up. For instance, in the pure food field, food must be kept in a certain condition but no specific method is set up as to how those conditions must be maintained.

S. R. Lewis was the first speaker for the specific requirement side and cited numerous codes setting up specific requirements and the manner in which they had worked out.

H. M. Hart was the second speaker for the standard requirement side and read several codes in which specific requirements were set up but which were in effect nullified by requiring certain standards to be met.

J. A. Sutherland, second speaker for the specific requirements side, cited various instances where on account of lack of information as to future occupancy it would be impossible to install a system to meet standard requirements.

Dr. E. V. Hill, the last speaker for the standard requirements side, showed where the results to be obtained was really the vital question and the manner in which the engineer and contractor attained those results was immaterial.

J. F. Hale, the last speaker on the specific requirement side, read the list of members of the code committee of the A. S. H. & V. E. and cited the fact that those eminent authorities had set up specific requirements in their code.

Business Personals

GUY HUTCHINSON has rejoined the Hoffman Specialty Co., Inc., Waterbury, Conn., as general sales manager. His appointment was effective January 1. CHARLES HAYNES will continue as vice president of the company, and will be particularly active on engineering and sales promotion of new products for which, due to his long engineering and sales experience, he is especially adapted.

H. BERKLEY HEDGES, for many years district sales manager, New York office of York Heating & Ventilating Corp., now the Carrier-York Corp., has been appointed special representative of Carrier Corp., with headquarters in Newark, N. J. Mr. Hedges, in this new and broader position, will co-ordinate the efforts of the various sales divisions of Carrier Corp. in contacts with national accounts. Previous to his connection with the York Heating & Ventilating Corp., Mr. Hedges was a member of the sales engineering staff of Carrier Engineering Corp. in Philadelphia, through 1916-1917.

R. L. SUHL, for the past three years assistant to the late Frederick S. Jordan, has succeeded him as manager of the nickel sales department of the International Nickel Co., Inc., of New York City, and Ransom Cooper, Jr., Walter C. Kerrigan and Charles McKnight have been appointed as Mr. Suhl's assistants. Mr. Suhl joined the original International Nickel Co. on May 1, 1903, and has thus been connected with this company nearly 29 years.

R. T. SMALL and FRANCIS L. GALLAGHER have been appointed to the sales staff of the Spencer Heater Co., of Williamsport, Pa., and will represent the company in the New England territory. Mr. Small will cover Connecticut and will make his headquarters in New Haven. Mr. Gallagher has the New Hampshire territory. He was formerly associated with the Manchester Supply Co.

JOHN F. FLANNERY has been promoted to the position of assistant manager of the Boston, Mass., branch of the Pierce, Butler & Pierce Mfg. Corp., New York City. Mr. Flannery has been associated with Pierce, Butler & Pierce for approximately ten years. Previous to his promotion, he had been acting as office manager of the Boston branch. THOMAS B. DOWD has resigned as manager of the corporation's Boston branch. LEON T. FEST has joined the Philadelphia branch sales force of the Pierce, Butler & Pierce Mfg. Corp., New York City, and will represent the corporation in the metropolitan district of Philadelphia. FRANK C. HACKETT has been appointed Washington representative of the Ames Iron Works Division of the corporation.

J. D. HARRISON, district manager of the Chicago office of Combustion Engineering Corp., New York City, from 1922 to 1929, has been reappointed to that position effective January 1, with offices in the Bankers building, Adams and Clark streets, Chicago. Mr. Harrison succeeds HUGH R. CARR, who has been transferred to the sales department of the home office at New York as manager of stoker sales.

GEORGE A. TAYLOR, assistant to the president of the Bishop and Babcock Sales Co., Cleveland, Ohio, has resigned his position with that company. He has not as yet announced his plans for the future.

RALPH EMERSON has been appointed sales representative in Maine, New Hampshire and Vermont for Hoffman Specialty Co., of Waterbury, Conn. Mr. Emerson will headquarter in Portland, Maine.

CHARLES MCDONOUGH has been appointed publicity manager of Combustion Engineering Corp., New York City, succeeding Carl Stripe, who has resigned. Mr. McDonough has been identified with the corporation for the past fifteen years, having served as assistant publicity manager for some time.

Michigan Chapter Discusses Refrigeration Problems

About fifty members and guests were present at the December meeting of the Michigan Chapter, American Society of Heating and Ventilating Engineers, which was held in Detroit. After dinner had been served, the minutes of the November meeting were read. President Giguere nominated G. D. Winans as chapter representative on the nominating committee, with William Boales as alternate.

The principal speaker of the evening was A. C. Wallich of the Wallich Ice Machine Co., who gave an interesting and instructive lecture on refrigerating machinery. His lecture was illustrated by lantern slides. Mr. Wallich brought to the attention of those present the penalties involved in poor design of a refrigerating system. There was considerable discussion from the floor ranging from large air conditioning jobs to household air conditioning. A very considerable interest was shown in the air conditioning of homes.

Mr. Dubry made a motion, which was carried, to invite the National Society to hold its summer meeting in Detroit, or the vicinity of Detroit, in 1933.

◆

Philadelphia Chapter A. S. H. V. E. Hears National President

At its regular December meeting, the Philadelphia Chapter, American Society of Heating and Ventilating Engineers, was honored with the presence of National President W. H. Carrier, whose address was the feature event of the evening. Mr. Carrier took as his subject "Servicing the Human Power Plant," which is the topic he has taken in addressing other chapters.

The meeting was held, as usual, at the Engineer club, with President Sanbern presiding. M. F. Blankin was elected representative, and A. C. Edgar, alternate, to serve on the National nominating committee.

Obituary

Fred Hoffman

Fred Hoffmann, president of the Hoffmann & Billings Mfg. Co., Milwaukee, Wis., died at his home on January 1, in his 61st year.

Mr. Hoffmann, besides being president of the manufacturing company, was also vice president of the Bay View National Bank. Although he had been ill for several weeks his death was unexpected. Several weeks ago, while attending the funeral of a sister, Mr. Hoffmann sprained his ankle, tearing several ligaments. The resultant blood clot caused his death.

Mr. Hoffmann was born and reared in Milwaukee, completing his education at the Colorado School of Mines. The company which he headed was founded by his father, 75 years ago. He succeeded to the presidency in 1894, after the death of his father. Mr. Hoffmann was a member of the Wisconsin club and the Milwaukee Athletic club. He was also interested in the up-building of the Washington Park Zoo, in Milwaukee.

Survivors include his wife, Mrs. Clara Lang Hoffmann; a daughter, Mrs. Carl G. Pieper; a son, Edward; and a sister, Mrs. Edward F. Niedecken. Burial was in Forest Home cemetery at Milwaukee.

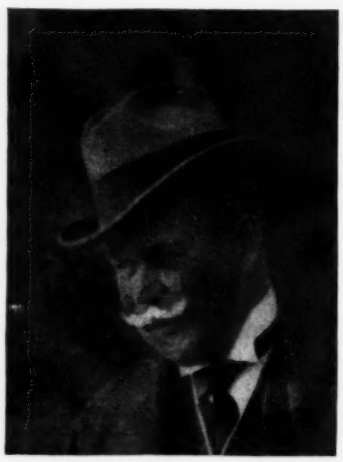
Albert W. McKenney

Albert W. McKenney, assistant sales manager of the Semler Co., Jeannette, Pa., died at his home in Greensburg, Pa., on December 29, as a result of a heart attack. Mr. McKenney was one of the oldest men in the fittings business and had a wide acquaintanceship in the industry. He started in business with the Kelly & Jones Co. in Pittsburgh when that company was organized, and when the firm moved to Greensburg he became assistant treasurer.

Mr. McKenney had been associated with the Semler Co. for the past seven years in a sales capacity. He was active with this company almost until the time of his death. He is survived by two sons and two daughters.

Jordan L. Mott

Jordan L. Mott, of the former J. L. Mott Iron Works of New York City, grandson of the founder of that company, died recently in Nelson Harbor, Bahamas. Death was due to a heart attack. Mr. Mott had been on a cruise with a friend on a steam yacht.



Jordan L. Mott

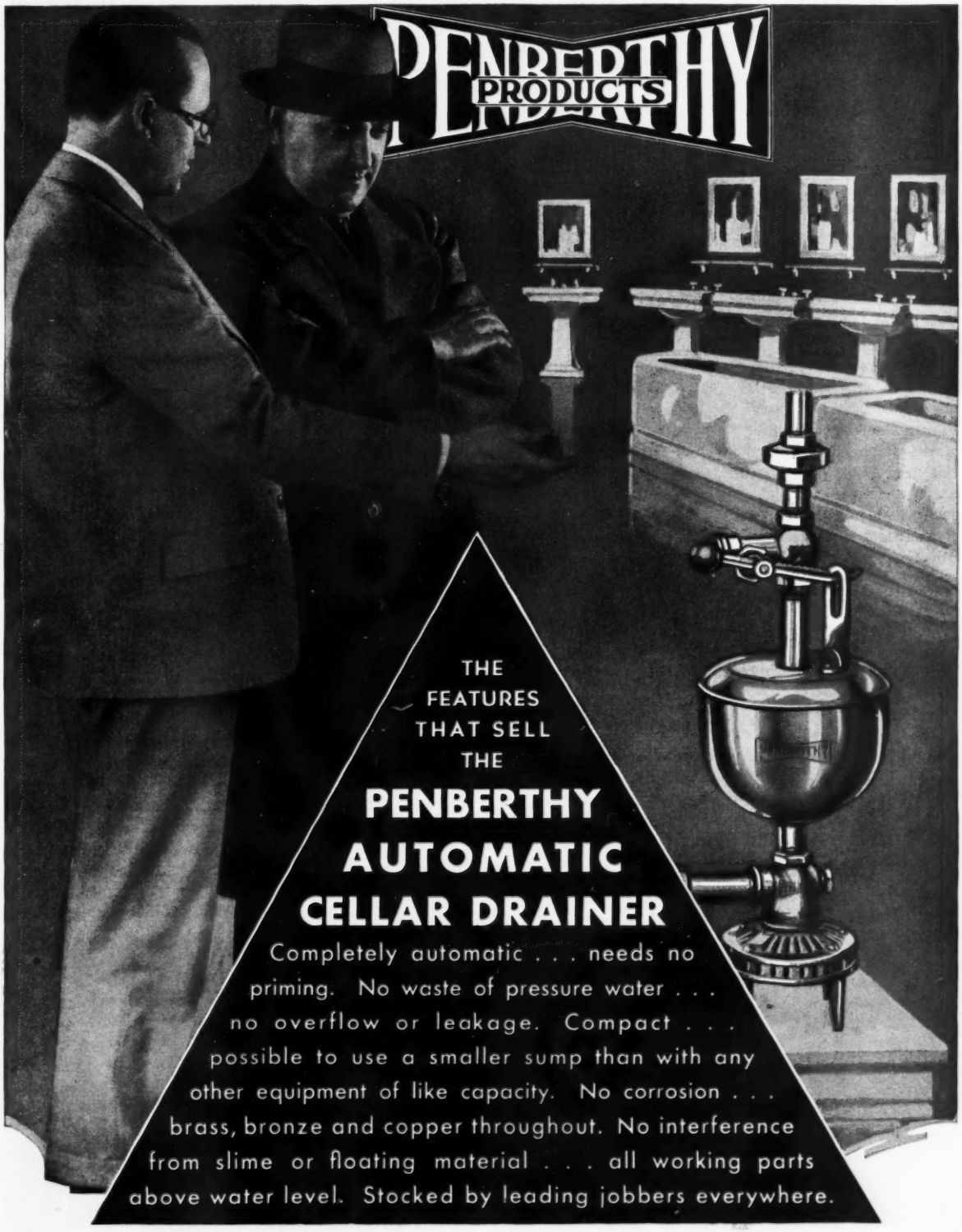
Mr. Mott was born in New York City on May 18, 1856, and upon completion of his education he entered the employ of the iron works. Upon the death of his father in 1915 he assumed control of the company as president, in which capacity he served until his retirement several years ago. It was during his period of presidency that the original firm reached its greatest development.

Mr. Mott is survived by a sister, Mrs. Marie Mott McLean, who is the widow of the late Supreme Court Justice McLean; a niece and two grandsons.

F. W. Fix, Sr.

F. W. Fix, Sr., president of the Fix-Lippman Co., plumbing and heating wholesale firm of Chicago, Ill., died on January 12 after having been confined for the past month with heart disease. He was in his 61st year at the time of his death.

Mr. Fix had been associated with the plumbing and



THE FEATURES THAT SELL THE

PENBERTHY AUTOMATIC CELLAR DRAINER

Completely automatic . . . needs no priming. No waste of pressure water . . . no overflow or leakage. Compact . . . possible to use a smaller sump than with any other equipment of like capacity. No corrosion . . . brass, bronze and copper throughout. No interference from slime or floating material . . . all working parts above water level. Stocked by leading jobbers everywhere.

PENBERTHY INJECTOR COMPANY

ESTABLISHED IN 1886

DETROIT

CANADIAN PLANT WINDSOR, ONT.

heating industry for many years and was well known throughout the trade. In 1913 he joined Kellogg-Mackay Co. in Chicago as the representative of Pierce, Butler and Pierce Mfg. Corp., and in 1914 he was made treasurer of the Kellogg-Mackay Co. He continued in this capacity until 1926 when he was elected president of the Kellogg-Mackay Co. In March, 1931, shortly after the Kellogg-Mackay Co. went out of existence, Mr. Fix helped organize the Fix-Lippman Co., which company he headed as president until the time of his death.

He is survived by his widow and two sons, F. W. Fix and John L. Fix, secretary and treasurer, respectively, of the Fix-Lippman Co.

William D. Pomeroy

William D. Pomeroy, vice president and general manager of Goulds Pumps, Inc., Seneca Falls, N. Y., died on January 6 at his home in that city, after an illness of several months. He was in his 58th year at the time of his death. Mr. Pomeroy was a graduate of Cornell School of Engineering and came to the Gould plant in 1907 as works manager. He was prominent in engineering circles, and last year won the Neville prize with an engineering article. Mr. Pomeroy was one of the most active men in Seneca Falls and took great interest in all civic affairs. He was prominent in the Masonic order. Surviving are his widow, one son and one daughter.

Ellsworth F. Hayden

Ellsworth F. Hayden, of the Smith & Abbott Company, Portland, Maine, died on Monday, January 4, according to an announcement that has been received from that company.

J. W. Maguire

John W. Maguire, manufacturers' agent of Chicago, Ill., died at his home in Winnetka, Ill., on January 12. He had been ill of heart disease for four months, and was in his 64th year at the time of his death. Mr. Maguire's offices were at 910 South Michigan avenue, Chicago. Among the concerns which he represented in a sales capacity were: Milwaukee Valve Co., Milwaukee, Wis.; Fretz-Moon Tube Co., Inc., Butler, Pa.; Interstate Foundry Co., Anniston, Ala., and Richmond Foundry & Mfg. Co., Inc., Richmond, Va.

He was a member of the Chicago Athletic Association, of the Shrine and various other Masonic orders, and a life member of the Art Institute. Burial was in Trenton, N. J. Survivors are the widow and three children.

Thomas P. Kingsford

Thomas P. Kingsford, president of the Kingsford Foundry and Machine Works, Oswego, N. Y., died at his home on January 5, after an illness of two years. He was in his 74th year at the time of his death. Mr. Kingsford, a graduate of Colgate University, was also for many years one of its trustees.

G. W. Goodridge

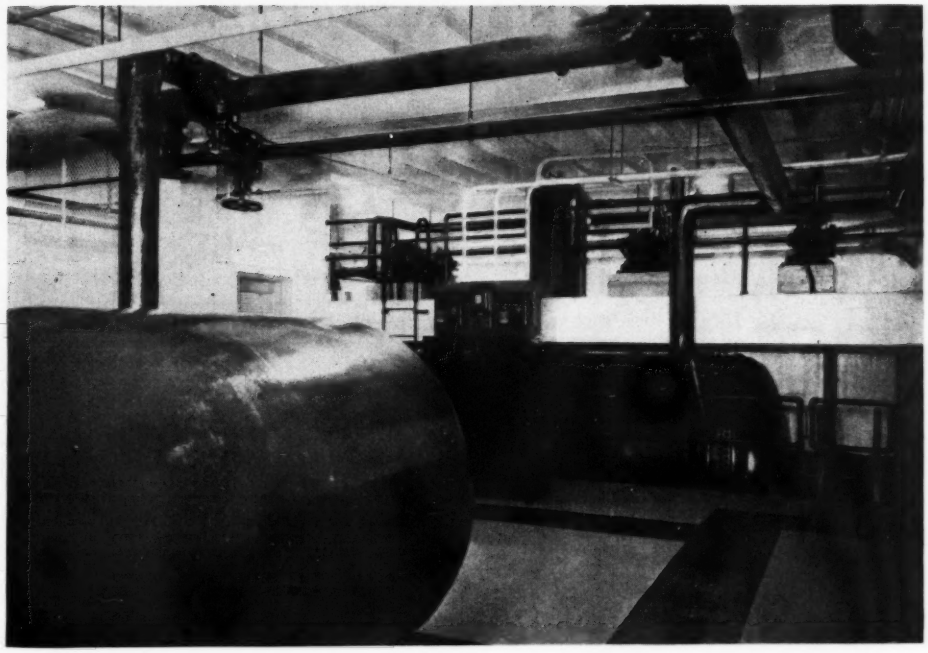
Gilbert Weld Goodridge, vice president of the Bead Chain Mfg. Co., Bridgeport, Conn., died January 5 at Bridgeport hospital following an illness of two months. Mr. Goodridge was in his 58th year and had been connected with the Bryant Electric Co., Bridgeport, for 30 years. He was assistant general manager of that company from 1904 until his retirement in 1928. In 1924 Mr. Goodridge was instrumental in the organization of the Bead Chain Mfg. Co. As an inventor Mr. Goodridge was widely known and had 70 patents to his credit. He is survived by his wife, one daughter, a son and one sister.

Bartholomew J. Poole

Bartholomew J. Poole, associated for many years with the manufacturing and wholesale branches of the plumbing and heating industry in New York City, died on December 16. He was born on October 12, 1854.

Mr. Poole spent practically all his life in the plumbing and heating industry, first becoming associated with Waefelaer & Duyster, pioneer jobbers, in 1875 and remaining with that firm until its liquidation in 1881. He then became connected with Henry Huber Co., New York City, with whom he was active for thirty-five years, during which time the firm became known as the Federal-Huber Co. After this Mr. Poole was associated with Behrer & Co., Inc., New York City jobbers.

Part of the group picture taken at the annual dinner party of the Jobbers' Credit Association, which was held recently at the Commodore hotel, New York City



Taste and Odors in An Air Supply

—How they were eliminated

By L. H. KESSLER and H. POMMERENCK

A NEW office building housing a number of dental offices was confronted with the problem of peculiar tastes and odors in the air used by the dentists on their patients. This building was equipped with an air compressor unit, a photograph of which is shown above. It supplies air to a receiver tank, which in turn feeds air lines running up the various columns to all of the tenants. As far as some of the tenants were concerned, these odors or tastes in the air lines made no particular difference, as for instance where the air was used for jewelers' blow pipes and motor cleaning apparatus. However, when this air was used by dentists on their patients, complaints were received that the air had a nauseating effect. This was serious and became both objectionable and embarrassing. Indications were that this condition would hurt the business of the dentists no matter how competent they might be.

Upon investigation, it was found that the suction pipe of the compressor was taken from the mechanical equipment room. Although all of the pieces of equipment located there were installed according to regulations, the conclusion was that the peculiar properties of the air in this room were responsible for the tastes and odors.

It was obvious that air from a different source was necessary and the solution was that of increasing the diameter of the suction pipe and extending it to one of the fresh air ducts of the ventilation system of the building. Further complaints as to the condition of this air were not forthconfing. The mechanical engineer bleeds the receiver tank at the bottom each day to blow off any oils or impurities.

The equipment room in question is shown in the accompanying photograph. As indicated by the appearance of the room, the problem was particularly difficult to analyze because everything was maintained in such excellent order. Cleanliness is a point of pride of the operating engineer in charge. Everything is painted and spotless. Different colors are used according to the pipe painting code to designate the different services. This is indicated in the photograph. Note the white lines in the center and the upper rear.

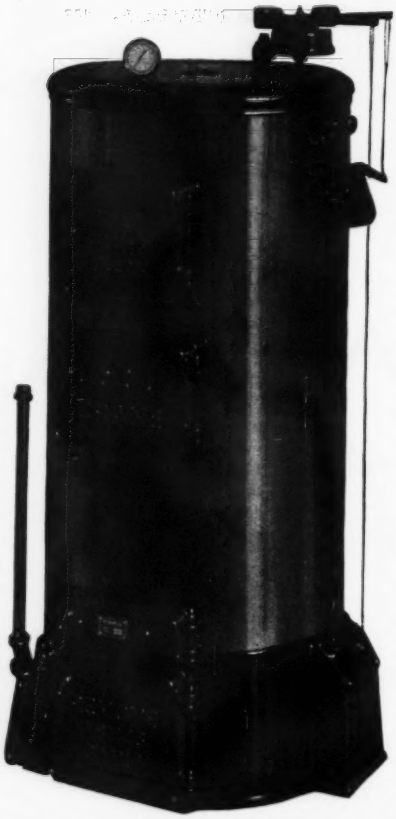
The compressor is seen on the balcony and is the center unit. The receiver tank is just to the left of the unit, also on the balcony.

It is well for the plumber to determine what uses the equipment which he installs is to be put to so he can advise as to a satisfactory layout. It is probably a common occurrence that a layout for one condition may fail when several different uses are made of it and a failure of this nature may discount an ordinarily good job.

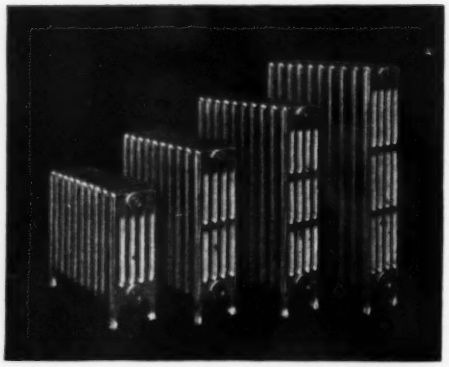
NEW . . . SPECTACULARLY IMPROVED . . . .

A complete line

FOR EVERY PURPOSE . . .



The New Crane Round Boiler



A Group of New Crane Radiators

NOW, after years of experiment and development, Crane Co. offers a complete new line of heating materials . . . jacketed sectional and round boilers for steam, vapor, vacuum, or hot water heating; direct and shielded radiators for all purposes; new and improved gas fired boilers; Doherty-Brehm Humidifiers; and Sturtevant Unit Heaters for industrial heating.

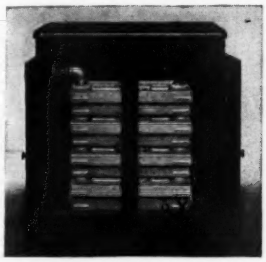
In the new Crane Sectional Boilers are embodied 27 points of distinct improvement over boilers of the past . . . gas flues that give 50% more heating surface, longer faster water travel, corrugated back wall to eliminate strains, grates that can't jump out, two-tone green jacket that goes on after the boiler is installed and tested and that fits like a glove . . . twenty-two others.

In the Round Boilers are 24 points of improvement, including longer fire travel, longer faster water travel, extra large combustion chamber giving larger fuel capacity, two-tone green jacket that goes on after the boiler is installed and tested, smoke hood at back instead of top, permitting installation with less headroom . . . nineteen others.

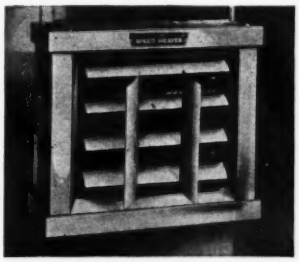
The new line of Crane radiators are modern in design with their long graceful columns that meet decorative requirements of 1932. They are supplied in three-, four-, five- and six-tube styles and may be had either open or equipped with the Crane Invisible Shield that reduces fuel bills and protects walls and hangings. In the line are also legless, bathroom, wall, and hospital radiators.

Basmor Gas-Fired Boilers offer the maximum of automatic convenience and gas burning efficiency. Staggered lugs forcing a backward and forward and to and fro heat travel assure maximum absorption of heat. All materials and attachments are of the highest quality. Now, an altogether new type is

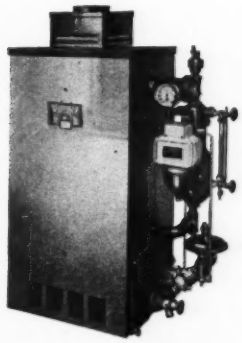
# of heating materials



The Doherty-Brehm Humidifier



The Sturtevant Unit Heater



New Compact Size of the Basmor Automatic Gas-Fired Boiler

•

The New Crane Sectional Boiler

offered, Series 25 Basmor Boilers, compact as a radio, for homes of average size and smaller.

Rounding out the Crane line is the Doherty-Brehm Humidifier, first truly effective low priced humidifier for steam, vapor, and hot water heating; and the Sturtevant Unit Heater for auditoriums and industrial buildings, where heat quickly supplied and quickly turned off is needed.

To the public, these offer better heating efficiency and consequent fuel saving, whether the fuel burned is coal, oil, or gas; the handsomest and most compact of basement equipment; easier tending and the usefulness that comes from fine quality.

To the heating trade, they offer not only improvements that make for easier, better, more economical installation; but opportunity to stimulate sales by giving customers brand new, outstandingly better products.

Build modernizing business with these new 1932 products. If you have not already received the book, "New Crane Boilers," write for it now.

CRANE

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Branches and Sales Offices in One Hundred and Ninety Cities

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

WITH contractor requirements at a low ebb, wholesalers of plumbing and heating supplies reported only a moderate demand for materials during the past fortnight, and, in the aggregate, the volume moved into consumption was little different from that of the preceding two-week period. Manufacturers' salesmen state that buyers for wholesale houses are not interested in ordering for other than their immediate requirements, being satisfied in going along with the light stocks now in their possession.

Since our last review appeared, at least one large manufacturer has announced an advance in prices to wholesalers on black and galvanized steel nipples. An emergency surcharge has been placed in effect on steel and wrought iron pipe freight rates. This amounts to 2 cents per cwt. where the rate is over 20 cents; and where the rate is under 20 cents the surcharge amounts to 10 per cent of the existing rate.

Reviewing construction activities in the final quarter of 1931 as well as in the year itself, F. W. Dodge Corp. finds that the 1931 total for all types of construction in the 37 states east of the Rockies amounted to $3,092,849,500 in actual contracts awarded in that area.

The year's final quarter produced a contract total of $530,141,700 for all classes of construction in these 37 states. Of this amount December accounted for $136,851,600, or 26 per cent of the total for the quarter. Contract awards in the final quarter of 1930 aggregated $839,715,600.

Residential building, during the last quarter of the year, showed contracts totaling $141,994,000. This was somewhat less than 27 per cent of the total of all construction awards, whereas in the final quarter of 1930 residential contracts amounted to $256,363,300 or almost 31 per cent of the total of all construction awards.

Non-residential building represented a somewhat higher percentage of the whole during the final quarter of the year just ended than during 1930. $207,969,500 was the amount of contracts for this class, representing 39 per cent of all construction undertaken, while in the like period of 1930 non-residential building amounted to 37½ per cent of the whole.

The remaining 34 per cent of the quarter's construction total was made up by public works and utilities which totaled to $180,178,200. This compared with 32 per cent of the whole in the final quarter of 1930.

Distribution between the three major classes of construction during the entire year of 1931 showed residential building contracts as 26 per cent of the total while non-residential awards were 36 per cent of the whole and public works and utilities represented 38 per cent.

DOMESTIC ENGINEERING

AN EDITORIAL SECTION

AUTOMATIC HEAT SECTION

The Contents:-

How a competent heating contractor checks properly the requirements of installations that burn

Gas for Home and Industry

From forty miles around this city prospects were brought in to see a dealer's carefully organized

Automatic Home Heating Week

This contractor finds that

Facts and Figures Sell Oil Burners

The characteristics of orifices in steam heating system overlooked, and

Condensation in Faulty Piping Causes Pounding

Some of the things the contractor should bear in mind in planning to use

The Conversion Burner in Residential Heating

Fig. 1—This is a basement, the finishing was made possible by the installation of a completely automatic and clean heating system. The equipment which supplies the heat is shown in Fig. 2. Note the Oriental rug at the foot of the stairs

Our engineer checked the installation from all angles as to piping layout, valves, load of radiation, boiler size, gas supply and Btu. value of gas furnished, said C. B. MAGRUDER *in describing how they solved trouble jobs in heating systems using*

Gas *for* Home *and* Industry

THE gas supply is adequate and the rate is reasonable in the territory which we serve and we have found excellent possibilities are at hand for the sale of domestic and industrial gas heating equipment.

This field was worked hard eight or ten years ago on gas heating and it might be said to have been oversold on gas equipment which for the time and in its proper place was so-called efficient but which efficiency was nothing to compare with that obtainable in equipment today. At that time, too, gas for heating was considered more or less of a luxury fuel. The same burners were selected and were installed in the same way whether the boiler was high pressure, low pressure, round or square, or for the purpose of roasting peanuts or keeping a house warm. Burners often were merely placed in the boiler, hooked up to the gas line, and left to be manually operated.

Is it a wonder then that inefficiency and high gas bills resulted and that after a season or two burners were jerked out and stored away or at the best were used only for a short time in the spring and fall? The ease with which such burners were sold, though, evidenced the desire of the public, even ten years ago, for a cleaner more convenient method of heating and was a forerunner of the present actual demand here for relief from heating plant drudgery and maximum efficiency in industrial projects.

The story of a typical local gas-fired residence installation, and how it grew, is as follows:

Mr. Moore, the owner of the gas boiler and the model basement pictured in Figs. 1 and 2, knew nothing at all about heating when he purchased this home. He recognized the fact that it contained a radiator heating system, which to him represented the best that was to be had in heating, inasmuch as he had seen what looked to be a similar systems in the better homes. As to the varying degrees of perfection and convenience of such similar appearing systems, however, he was entirely ignorant.

The boiler installed when he bought his new residence was handfired with coal, and as the type of system installed, a one pipe steam job, required almost constant attention, if any satisfactory degree of even warmth was to be maintained, it was necessary to have a janitor who

AUTOMATIC HEAT SECTION

Fig. 2—This second view of the basement in Mr. Moore's home shows the heating equipment which is one of the least conspicuous parts of the furnishings. Notice also the piping is concealed very effectually

would be on hand at all hours. To keep a man so employed was an expense and a nuisance, and even so with the best of attention to the heating plant, the room temperature fluctuated to a disagreeable degree.

Manually operated gas burners were next resorted to. They were installed on the counsel of a handyman who knew nothing about selecting proper type or size burners for the installation, but installed a certain kind and size because a neighbor had them in the next street. He would not advise a thermostat, he said, because such "gew-gaws" were always getting out of fix and causing you a lot of trouble.

The results were disappointing. The temperature still fluctuated, it was still necessary to run to the basement to cut the gas up or down, and in severe weather sufficient units were not there to produce the necessary heat to raise the pressure quickly. It would take at least two hours to heat the house comfortably in the morning —nothing practically had been gained by the change, except the relief from taking out ashes, and the fact that

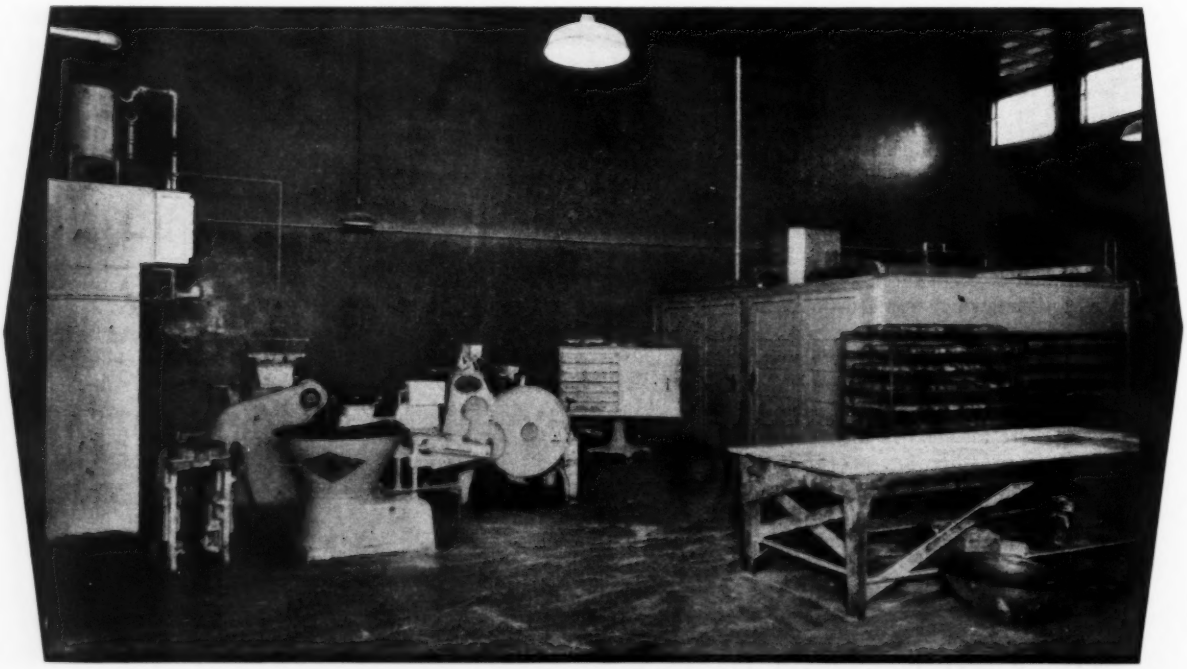


Fig. 3—In this bakery gas heating equipment is used for a number of purposes aside from space heating. The installation was made by the author of this article

Fig. 4—This building is heated by the gas burning equipment shown in the view below. Here, as in all cases where automatic heat is to be installed successfully, exposure and heat losses had to be considered

it was cleaner, and these advantages were offset by the unnecessarily high fuel cost.

Mr. Moore's next step toward ideal heating was scarcely more satisfactory. He consulted a plumber, who was making some minor repairs to his bathroom equipment, about his heating problem. This plumber, who knew plumbing, had never done any heating but could not pass up such a golden opportunity. Now was as good a time as any to get into the heating game, he decided, and so he went for advice and specifications to a salesman of the equipment required who, over-eager to make a sale and accustomed to selling on a price basis only, recommended a gas boiler of capacity insufficient to carry the load.

Mr. Moore was therefore doomed again to disappointment! It was found all but impossible to get up a pressure with the new boiler. The plumber was called in and backed by the salesman, he blamed the trouble on a dirty boiler. He blew off the boiler for hours and did the same thing three or four times—he put in a cleaning compound—he flushed the boiler repeatedly—and if ever a boiler was clean that one should have been. Still it was impossible to build up a pressure. Next he took a good guess that the connections at the boiler would have to be changed, and he made such changes, and then he put on new air valves that would release the air quicker, but with no better results for all of his trouble.

Mr. Moore, well-posted in his own profession but uninformed as to heating, was as patient as Job and plugged along knowing that he was not satisfied but thinking that perhaps he expected too much, and the

(Continued on Page 79)

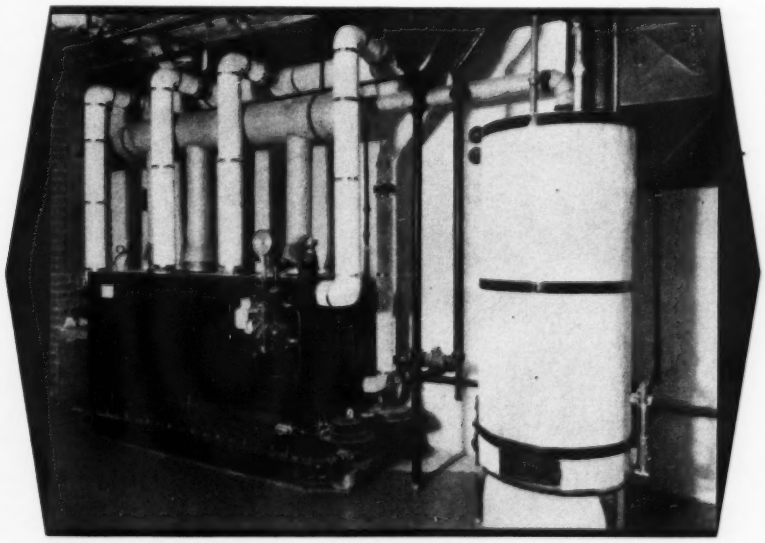


Fig. 5—Frank A. Buscher, heating contractor of Buffalo, New York, made this gas heating installation to take care of the requirements of the home shown above

AUTOMATIC HEAT SECTION

Telling the world about automatic home heating

Automatic Home Heating Week Develops Sales Leads

Pennsylvania firm stages show to demonstrate developments in house heating and draws prospects from a radius of forty miles » » » » » » »

SKILFULLY heralded by newspaper advertising and direct mail announcements, the Automatic Home Heating Week, held August 3 to 8 by Murray Company of Honesdale, Pa., proved that the automatic heating idea has taken a strong hold on the minds of the American people.

Large newspaper advertisements in "The Wayne County Citizen," during the month of July and leading up to the date of the show, built a widespread interest in it. "See these heat providers in action," said one of these advertisements, promising practical demonstrations of all heating equipment during Home Heating Week.

The advertisement in question showed the stoker and the oil burner handled by the Murray Company. Each piece of equipment was highly personalized by carrying in the copy under it reference to the factory representa-

This portion of the exhibit was given over to demonstrations of the stoker handled

tive who would be on hand to explain and demonstrate how the equipment worked. Across the bottom of the ad, in large type, ran these words: "You can't afford to miss Home Heating Week."

Another advertisement was on gas ranges, and a demonstrating truck, showing several of the ranges, circulated through the community.

Building Public Interest

In addition to the newspaper advertising, the Murray Company issued a four page newspaper of their own, nicely printed, carrying complete news of the Home Heating Week, a number of informative articles on automatic heating, pictures of homes in which the company has made installations, and photographs of the members of the firm and its staff.

Now let Philip R. Murray, of the firm, tell how the show was engineered, and its results, in his own words:

"As you know from the papers sent you how our advertising was conducted we will endeavor to give you a description of how the demonstrations were made.

"As additional advertising to the papers we asked the manufacturers whose products were shown, to write some fifty prospects inviting them to call at our store and see the demonstration and meet their representatives. Circulars were enclosed with these letters describing the particular kind of heating that each prospect was interested in. We found this very good advertising in the past, and it sure helped at our Home Heating Week.

"The pictures of the store front show the signs, and the demonstrators which were illuminated with colored electric lights working on a flasher that attracted a lot of attention. The display was so conspicuous that practically every one passing by stopped and looked it over.

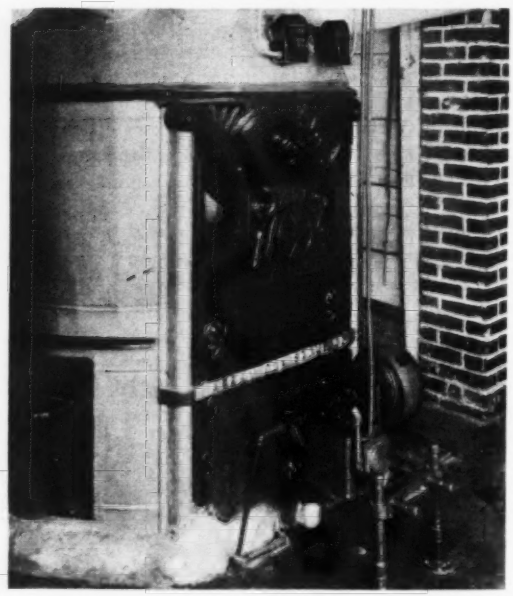
"We also had what we called the Range Truck, which was lighted and equipped with a special horn. This truck drove slowly through the town and the surround-

(Continued on Page 75)

Demonstration of automatic heating equipment has become the rule with heating dealers. In stores and in their homes, they have in operation units they are merchandising. This story deals with a week of demonstrations by a heating dealer.

This part of the exhibit drew attention to the oil burner—in operation just inside the door

AUTOMATIC HEAT SECTION



This installation, in the contractor's own home, was accepted as proof by a prospect

Facts *and* Figures Sell Oil Burners

OWEN F. RYAN and Sons, heating contractors, Buffalo, N. Y., are having no small measure of success in the field of selling and installing high-grade oil burners. Many Buffalo homes, institutions and industrial plants are witness to the quality of their work. A year or so ago this firm entered the apartment house field. One of their first jobs is worthy of consideration. This was the selling of thirteen burners to a firm of apartment house builders well-known for their success along home building lines.

This firm had constructed a long row of seven apartment buildings on the northern fringe of Buffalo. Each building contained twelve apartments. In addition, a higher type of apartment was constructed, a half a mile or so away, in the fast-growing town of Kenmore that joins Buffalo on the road to the Tonawandas and Niagara Falls. In this sector were six apartment buildings of the duplex de luxe type, hitherto unknown in the Buffalo area. Several of these buildings may be seen in the photograph on the next page. The builders described these de luxe apartments as follows:

"Each apartment is a complete home from attic to basement-garage. Beautifully landscaped garden court. Large living room, dining room and kitchen. Two bedrooms and full tile bath. Steam heat, electric refrigeration and gas range."

The apartments in the other group have this short description: Steam-heated apartments on first, second and third floors, each with living room, dinette, kitchen, two nice bedrooms and bath with shower. Gas range and electric refrigeration. Individual garage in rear. Laundry in basement."

Presenting the Facts

In laying plans for these two types of apartment buildings, the owners considered the proposition of heating with oil. Facts and figures presented by the Ryan firm forced the builders to feel that the cost of oil burner equipment would be absorbed by oil heating economy within a period of three years. The builders finally decided in favor of oil, but not before complete information was had as to type and size of boilers. It was decided to standardize on a steel return tubular boiler which has worked out very successfully.

Each 12-apartment building is equipped with approximately 1200 square feet of standing steam radiation and a one pipe system has worked out very effectively. At various times tests were made with different air valves, including most of the well-known makes, and vacuum valves. This was done more or less as an experiment to determine which valves would work out most effectively for the particular application.

Automatic control of temperature within the apartments is maintained by a duostat which maintains a definite differential between outside temperature and the temperature of the last radiator in line. For example, when the outside temperature is 32 degrees, the duostat will operate the oil burner until such time as the last radiator in line acquires a temperature of 150 degrees, at which time ample heat is transmitted to bring room temperature up to 70 degrees. In the same way if outside temperature is 1, the duostat will continue the operation of the burner until the last radiator in line acquires a temperature of 215 degrees. This differential is automatically maintained.

Each boiler is also equipped with limiting control to shut off oil burner when a boiler pressure of 4 pounds is reached. This control starts burner in operation again when pressure has decreased to approximately ½ pound. This, too, is adjustable for range and differential.

Each apartment building in the second group is equipped with an oil burner and each has one 500-gallon oil tank. The duplex apartment buildings have one burner for each building, which houses eight families, but the three oil tanks of 1,000 gallon capacity supply the buildings in sets of two.

"We started this double installation in July, 1930," states Mr. Ryan. "The last burner was installed in June, but most of the burners were in operation right through the winter. The apartment owners seem very much pleased with the installation and the operation of

the oil burners and have expressed a decided economy over the old heating method has been effected.

"We had quite some difficulty in making the installations due to the small size of the boiler rooms in both types of apartment buildings. In the duplex homes, for example, we had to work in a space eight by ten feet. There certainly was no waste space and our problem was to find sufficient room for the various equipment. After installing the boiler and burner we had to put the controls on the side instead of the back. We were greatly handicapped in this regard but the installations were eventually installed to the satisfaction of all concerned."

Starting "at Home"

The firm of Owen F. Ryan and Sons is truly sold on the merits of oil heating. This is true from the fact that Mr. Ryan's large home is oil-burner equipped. He has a large furnace in his clean basement and has it painted in aluminum color. The door and trimmings are done in red. The burner itself and electrical connections are painted in blue. And to what purpose? That he might all the more interest prospects he brings into his own home and sell them oil heat.

Just recently Mr. Ryan interested a Buffalo doctor in the idea of heating his home with oil. To clinch the sale, Mr. Ryan invited the doctor over to his home one evening. After the preliminaries were over the men adjourned to the basement and there the heating contractor showed the doctor a first-class oil burner installation. Mr. Ryan explained oil heat to his prospect and the sale was made there. The big point in the doctor's mind was the fact that the one attempting to make an oil burner sale was actually using oil heat in his home. He found the contractor practicing what he preached.

Mr. Ryan is a firm believer in rendering the utmost service at all times. He plays ball with his customers and prospective customers. At another time he made a sale, and it was subsequently discovered that the space available in the customer's home was unsuited for the regulation oil tank. Ryan had a tank of oval shape in use in his own home. Rather than keep the customer waiting for the importation of the tank that would serve his needs, Ryan yanked out his own tank and installed it instead. He himself got along with a make-shift oil tank in the interim.

"Selling oil burners today is a man's job," says Mr. Ryan. "It calls for the correct facts and figures and a thorough knowledge of not only the proposition of oil heating but all the various kinds of oil burner equipment and the different types of heating in general. We find that in selling a customer, or rather prospect, it is a good plan to tell just what you've done in oil burner lines in the past. Give him facts and figures and back up these with real oil burner enthusiasm."

This group of apartment houses is heated by oil burners. It is one of the most interesting sales made by the Ryan organization on the basis of its experience and reputation

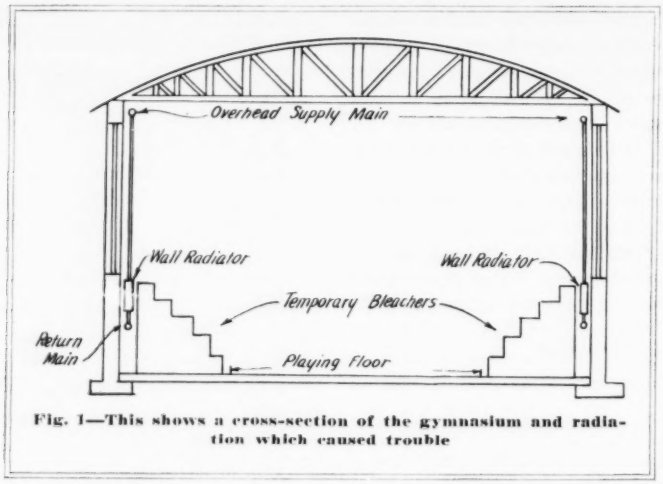


Fig. 1—This shows a cross-section of the gymnasium and radiation which caused trouble

Condensation in Faulty Piping Causes Pounding

An Earl Brown trouble job

"YOU'RE the man I want to see," was the way Mr. Gordon welcomed me when I walked into his shop at Beverly, Iowa, the other day. "I've got one of your vapor systems on an automatic heat job that makes more noise than a boiler factory. I wish you would show me how to fix it."

"I'll be glad to. What job is it?"

"I don't believe you know about this job. The plan was made by an architect in Washington, Nebraska."

"O, it's an orifice job, is it?"

"Yes, and a terrible one. It is in the new gymnasium for the college. Since the building is located quite a long distance from the main heating plant, we put in a little automatic heat job, using a vapor system, a cast iron boiler, and an oil burner."

"Is the burner controlled by a room thermostat?"

"Yes, located in the main room of the building, of course. The orifices seem to distribute the heat nicely and we have had no complaint on that score. However, each time the burner starts, every radiator has a terrible amount of water hammer and gurgling in the supply connections. It is worst when the radiators just start to heat. When they are fully heated the noise isn't so bad but it is still there. We must do something because they won't pay me for the job. I can't blame them, but I do need the money."

"Let's go out to the gym. We can talk about it as we drive."

"Wait until I get a few tools. We may need them."

As Gordon had explained, the building was a small gymnasium. As shown in Fig. 1, temporary bleachers were used. The radiators were hung immediately under the windows, with the bottom of the radiators about 11 ft. above the floor. Obviously the architect planned to avoid having the air from the radiators rise up around the spectators. Then, too, by installing the radiators at this height they were able to use a gravity return system. There was nothing wrong with the radiator locations, but the supply valves had been located about 7 ft. 0 in. above the floor, so that they could be operated without

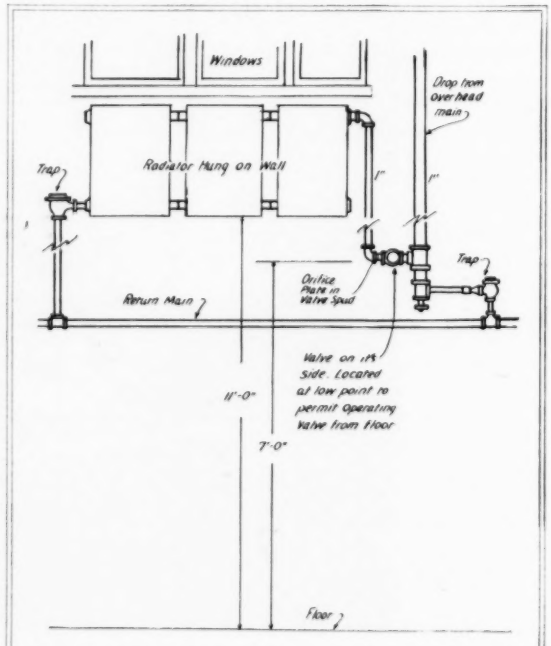
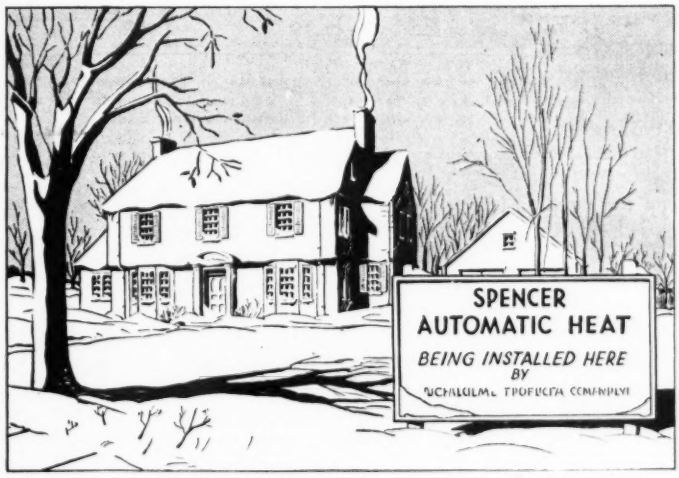


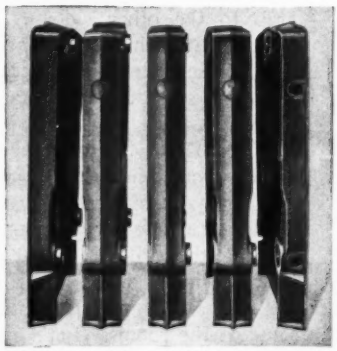
Fig. 2—There is a mistake in this piping which caused very objectionable pounding. It came as a result of attempting to keep the control valve within easy reach

Are Your Boiler Sales "Winter-Locked"?



Spencer installations go on in every kind of weather; your selling program is never halted.

DO YOU have to stop selling boilers in Winter because of the difficulty of cold weather installation? Heating contractors who sell Spencer Boilers are going right ahead taking orders for, and INSTALLING boilers regardless of snow or ice, blizzards or zero days. This is made possible by Spencer quick-erection. All Spencers are easy to handle and erect, because of their exclusive "sandwich" construction. There is no delay, waiting for shipments; Spencer Boilers are carried in distributors' stocks for immediate delivery in each community. You can assure prospects at any time, that their boiler can be erected during a 24-hour period; in other words, that they need not be without heat for even a day while the new boiler is being installed. You can carry your replacement campaign all through the winter; have a 12-month "selling year". Increase volume and profits while competitors are sitting idle. Write for details.



The famous "sandwich" construction of Spencer Cast Iron, Sectional Boilers. Each section is complete.

SPENCER HEATER COMPANY

Division of Cord Corporation

Williamsport, Pennsylvania

The Spencer Foundry Company, Ltd., Toronto, Ontario, Can.

SPENCER
Magazine Feed
BOILERS
for steam, vapor or hot water

AUTOMATIC HEAT SECTION

the use of a ladder. In doing this, a mistake had been made in the piping arrangement which fully accounted for all the trouble. See Fig. 2.

After waiting until I had looked over the job, Gordon asked, "Well, what's wrong? Why do we have so much noise?"

"There isn't much wrong. Your steamfitter simply installed the traps that drain the drops from the overhead main on the wrong side of the valves."

"What's that? You say the traps are installed on the wrong side of the valves? That doesn't sound like the answer. Shouldn't we always install the trap in such a way that the drop does not fill up with water when the valve is closed?"

"Usually that is the thing to do, but on this particular job you can not do that without causing this objectionable noise. Because of the way the trap is installed, it does keep the drop from filling with water when the valve is closed, but it also puts the orifice plate in the wrong place.

"An orifice plate is merely a metal disc with an orifice or hole in it. This plate should be located so that it slows down the steam enough to hold all the radiators in step. Because the orifice is usually quite small, the steam flows through it at a very high speed. The speed is so high that there is no more possibility for water to flow back against it than there is for you to swim against the current in the gorge below Niagara Falls. It just can't be done. On the other hand, any water that wants to flow with the steam is picked right up and is carried along. Any attempt to make water flow through an orifice against the flow of steam results in noise because the steam blows the water back every time. That is what happens here.

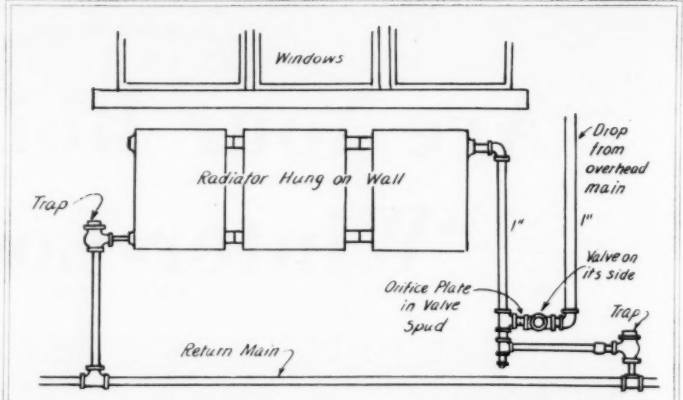


Fig. 3—One of the suggested solutions to the difficulty. Note it requires a change in the piping. This was followed in the smaller rooms where single radiators were used

"The orifice plate is located on the discharge side of the valve and immediately beyond the orifice plate the piping rises to the radiator. The first steam that passes through the orifice condenses when it hits the cold riser to the radiator and the water tries to flow back through the orifice. However, the steam will not let it flow back, and this causes the severe pounding as the radiators heat up. Gradually some of the water is blown into the radiators, and after the radiator warms up, the amount of steam flowing into it is reduced. As a result of the smaller amount of water on the discharge side of the orifice and the slower flow of steam through it, less noise occurs after the radiators are warm. That explains your whole trouble, doesn't it?"

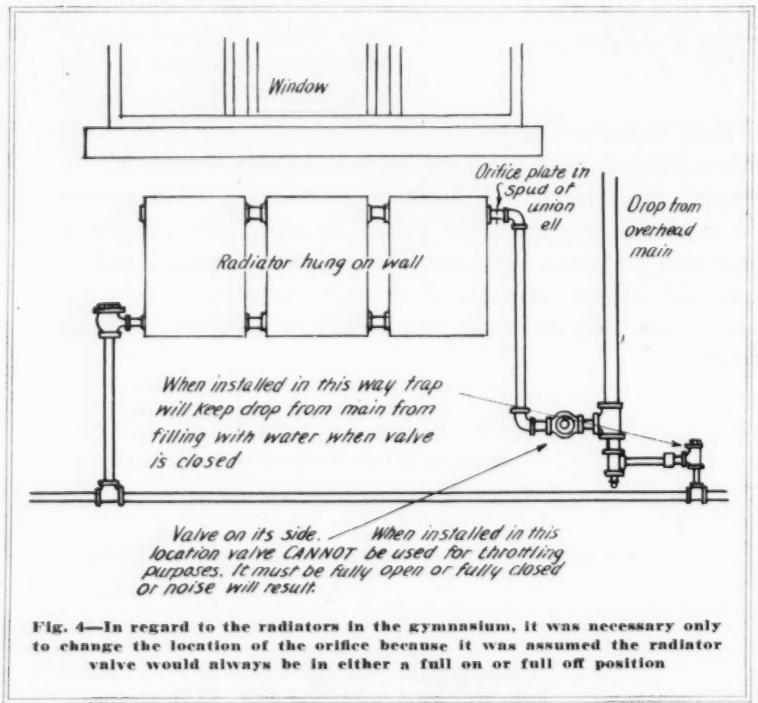

Window
Orifice plate in spud of union ell
Drop from overhead main
Radiator hung on wall
When installed in this way trap will keep drop from main from filling with water when valve is closed
Valve on its side. When installed in this location valve CANNOT be used for throttling purposes. It must be fully open or fully closed or noise will result.

Fig. 4—In regard to the radiators in the gymnasium, it was necessary only to change the location of the orifice because it was assumed the radiator valve would always be in either a full on or full off position

"Yes, that explains it, but what am I going to do now to correct it?"

"May I see the heating layout? You brought it along, didn't you?"

"Here it is. I remember now, a trap was shown on the other side of the valve. My fitter and I thought that this must be wrong, so we changed the trap to the other side. I wish we hadn't, but wishing won't help. Would you advise, then, changing the trap to the other side of the valve as shown?" (See Fig. 3.)

"Yes. That will cure your troubles."

"Do you think that since the job is already installed this way that we could get satisfactory results by simply moving the orifices? That would be much easier to do."

"I was just going to suggest you might do that in some of the rooms. Let's analyze this job a little. In this large room they have at least a dozen radiators, so if they need less heat, one or more radiators can be shut off. In other words, they will never need to throttle any of the radiator valves in this room.

Because of this we do not have to be concerned so much about locating the radiator valves where they may be throttled. Therefore, I suggest that for the radiators in this room, you simply remove the orifice plate from the valve spud and install it in the union ell at the top of the riser to the radiator. See Fig. 4. You see, by locating the orifice plate in the spud of the union ell it will be at the highest point possible and water cannot collect beyond it. Any water that may be carried up the riser to the radiator will blow with the steam into the radiator and noise will not result. In addition to being easily changed, the arrangement shown in Fig. 4 has the advantage that when the valve is closed the trap will keep the drop from the overhead main free of water. This is not a big advantage except when a building is allowed to cool down below freezing. Many a pipe has split open when the water that collected on the steam side of a closed valve froze."

"I'm very much in favor of this arrangement because it will not require much labor to make the necessary changes. Why not change them all the same way?"

"No, I don't believe that would be wise. In some of these smaller rooms you have only one radiator and in order to control it properly, it should be throttled. The scheme shown in Fig. 4 can not be used in this way because when the valve is open only part way it acts just like an orifice. Perhaps you have never considered a valve as an orifice which may be adjusted, but it is one. For this reason you would have exactly the same trouble you are now experiencing if you throttle a valve that is located as shown in Fig. 4. If I were you, I'd move the trap to the other side of the valve to remedy the trouble in these small rooms."

"But still I can't say that I like that arrangement. Water will collect in the drop from the main when the valve is closed, won't it?"

"Yes, it will, but that probably will never make any difference because this building will never be cool enough to let the water freeze."

"How about the noise when the valve opens?"

"Since the steam and water will always flow in the same direction there won't be much noise. If there is any noise, it will last only a few minutes. The big advantage of this arrangement is that any water which may collect on the discharge side of the orifice or valve will be drained off by the trap before it can cause any trouble. For this reason the valve can be used safely for throttling purposes."

"I was just wondering what would happen if the valve shown in the last illustration leaks slightly when it is supposed to be closed. Won't water pile up on the outlet side of the pipe?"

"It will, if the valve is installed as shown in Fig. 4. If the valve leaks, a small amount of steam will pass through and condense. The water formed in this way may fill up the whole riser. Then, when the valve is first opened, the steam will rush through the water, causing a lot of noise. However, this will not last long for soon the water will be blown into the radiator or drain back through the valve. With only a short riser such as we have on this job, this trouble is not serious. With a long riser, serious trouble might be experienced and the noise might continue for several hours. For this reason, be very careful where you use the arrangement shown in Fig. 4."

Automatic Home Heating Week Develops Sales Leads

(Continued from Page 69)

ing hamlets advertising our Home Heating Week and creating a lot of interest in the new style ranges.

"Another of the pictures is a hot water boiler equipped with specialties, in operation. The pictures shown alongside the boiler are of local installations that interested purchasers.

"The stoker demonstration speaks for itself. This was very interesting to most of our customers, as we are located just a few miles from the anthracite coal regions and if people can obtain automatic heat by using coal, they will be inclined to do so.

"The oil burner demonstration, with tanks complete was located just inside the entrance. Many people were interested in this exhibit as we are just pioneering this country with oil as fuel.

How the Public Responded

"As to results, would say that we made a number of good sales; but the largest benefit we derived is the fact that it established us as the outstanding heating company

This heating system, with radiators on side of building was in actual operation

of our vicinity, and we have our prospect books well filled with names of people who are going to buy some kind of heating this or next year.

"We were agreeably surprised by a number of people coming thirty-five or forty miles to see the display, and leaving orders when they saw the equipment operating in which they were interested. Another pleasing result was the interest shown by our neighbors who are usually overlooked when you go out for business.

"Some years ago we conducted a range sale in August and it was very successful. This was one of the reasons why we took a chance on a Home Heating Week.

"There is no question in our mind that if the dealers in the heating business would make a real effort by advertising and demonstrating during August a great deal more business could be secured. There is an old saying 'that a good week's work done in the summer when the other fellow is loafing is worth two at any other time of the year.' We believe there is a great deal of truth in it and think that if the dealers put forth an effort as outlined above, a great deal of heating equipment could be installed instead of luxuries such as radio, etc., upon which so much sales effort is spent."

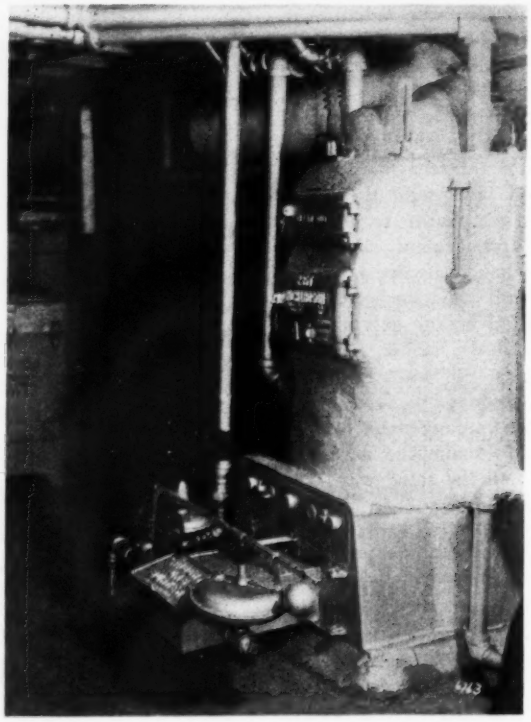


Fig. 1—Typical installation of a gas conversion burner in a coal designed hot water boiler. The ash door was removed when the burner was installed; the space between the fire box and the ash door frame has been filled with brick and mortar. The hot water limit control, secondary air control, main gas motor valve and connections to the thermostatic pilots can be seen in the illustration

The Conversion Burner in Residential Heating

By . . . . . J. D. PREBLE

AS NATURAL gas pipe lines are extended further and further and as this fuel is made available to great centers of population, thousands of prospective customers desirous of heating their homes with gas find themselves in a predicament of having central heating plants in their homes, the condition of which range from new, (not more than one season's usage), through all the stages and ages of heating plants which would not be fit for converting to gas heating. Quite naturally a home owner objects to throwing away a practically new or but little used heating plant because he feels that in doing so, he is throwing away something of value. Experience with central heating plants tells him that beyond a doubt his heating system has many years of satisfactory service. Therefore, there is definitely defined a large demand for gas conversion equipment which makes it possible to convert the existing heating plant to a gas heating plant.

With the introduction of lowered gas rates throughout the United States for heating purposes, there was also created a large class of prospective customers who were desirous of using gas to heat their homes but who were looking for equipment with a low initial cost. There is but little differentiation between the second class and the first class mentioned because unquestionably the prospect who is looking for a low priced conversion burner is convinced that because of the fact that he already has a central heating plant installed, he should be able to save a great deal of expense by merely installing the conversion equipment in his present heating plant.

There is also a third class of prospective customer who is, after of all, skeptical of what it will cost him to heat his home with gas and is therefore desirous of having a minimum investment in new equipment and who is desirous of being in a position to change to other fuels with little inconvenience. This is particularly true in some parts of the country where natural gas has been available and where the supply of this gas was always limited and the quality of the service rendered questionable. This fact is particu-

larly true of some sections of the Middle West and, in view of these experiences, it is hard to displace them with the fact that there is an unlimited supply of natural gas available today as compared to the inadequate supplies of the past.

The conditions outlined above are most likely to be deciding factors as to whether a conversion burner is installed in the present heating system or whether the present heating plant is replaced by an entirely new gas designed heating plant. A further study of this situation, however, indicates other items which must be taken into consideration. When considering the installation of conversion burners, if it is always remembered that a conversion burner is no more efficient than the heating plant in which it is installed, and further, that it can be just as satisfactory as the heating system upon which the plant must depend to distribute its heat throughout the house, the number of unsatisfactory conversion burner installations made will be negligible. As a general class, a small boiler designed for coal burning having four sections or less, be it either a rectangular boiler with vertical sections or a round boiler with horizontal sections, is as a rule unsatisfactory for conversion. This statement in no way reflects on the manufacturers of coal-fired boilers who make boilers to burn coal. Therefore, the fact that a boiler does not convert to an efficient gas installation does not necessarily indicate that the boiler is not efficient as a coal boiler job. This small type boiler is designed to absorb a large amount of radiant heat from the coal fire and does not have enough absorbing surface to absorb a sufficient amount of the heat generated by the gas burner installation to make an efficient gas burning boiler.

There exists today a general belief that the conversion burner field can be definitely determined by a discussion of gas rates. An investigation of the usage of conversion burners throughout the country, however, indicates that conversion burners can be used and are used successfully anywhere that gas designed equipment can be used. However, as the cost of gas increases, greater care is necessary in the selection of coal equipment suitable for conversion. Indications are, that regardless of how cheap or how low gas may be purchased in a territory, the expense of adjusting conversion burners with orsat apparatus is a good investment.

The gas conversion burner is fitted into a piece of equipment already on the customer's premises, and the relations between flue travel, products of combustion and draft conditions are different on each job. Therefore, the only means of being assured of the proper operation of each installation is to make an accurate analysis of the operating conditions of each job.

Installation Policies and Practices

Conversion burners should be provided with all of the equipment necessary for complete automatic control. Usually this includes the use of safety pilots, hot water limit controls, steam pressure controls and low water cut-off controls. The necessity for room temperature controls on all gas designed and conversion equipment usually is accepted without question because in the first place, the home owner who is buying this equipment is not only buying gas heat because of its cleanliness but he is also buying it because of the ease with which it lends itself to automatic control.

A thorough cleaning of coal fired equipment, including careful inspection and cleaning of chimney, is good practice in the installation of conversion burners. The theory is that before gas is used, as much of the soot, grime and dirt from the old method of heat should be removed as is practical. Generally all conversion burners are equipped with draft hoods of one form or another, and

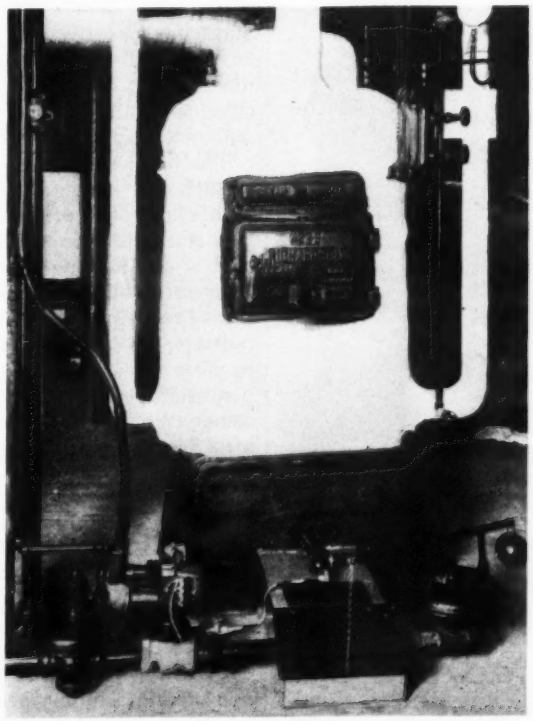


Fig. 2 — Here is another typical gas conversion burner installed in a round boiler. The ash pit opening has been bricked up. Note the various controls

AUTOMATIC HEAT SECTION

BARBER
Automatic Jet Gas BURNERS

Put Gas Heat Within the Reach of All

Great new markets for gas heat have been opened up within the past few months by the coming of natural gas into new territories.

Do not delay taking advantage of this opportunity to increase your volume of business and profits thru the sale and installation of Barber Conversion Gas Burners, a tried and proven product over a period of fourteen years.

When you install Barber Burners, it is not necessary to discard expensive existing equipment. They are easily and quickly installed, and highly efficient in any size or type of boiler or furnace.

All you do is send us the TRADE NAME and NUMBER of the boiler or furnace, also the NAME OF THE MANUFACTURER. We supply you with a tailor-made burner for that particular job at a price that is reasonable and profitable.

Write today for Barber's Dealership Plan . . . get in on automatic gas heating profits NOW!

SPEND FOR THE HOME IN 1932

THE BARBER GAS BURNER CO.
3702-04 SUPERIOR AVE. CLEVELAND, OHIO

some installers go so far as to remove the old flue connection, installing a new flue connection with a draft hood similar to that used on gas designed equipment, the proper size flue connection being calculated before the installation is made. The calculations should be based on the procedure recommended by the American Gas Association Laboratory Sub-Committee's study, "Installation Practices for the Installation of Conversion Burners." This study of the installation of conversion burners requires one square inch of flue area per 7,200 Btu. heat input at the burner.

When a conversion burner is installed in an existing heating plant, there may be some tendency to leave the heating system unchanged regardless of unmistakable evidences of inefficient operation. As stated before, a gas conversion burner can be no more efficient than the heating equipment or the heating system through which it is required to work. Therefore, it is necessary that faults in the existing heating system be corrected when the burner is installed. Any failure to recognize the importance of this fact only serves to make unsatisfactory conversion installations. This results in the dissatisfaction of the user which reflects on gas as a fuel for heating, on the conversion burner as a method of using gas fuel, and on the parties identified with the installation of the conversion.

The above conditions indicate that the contractor who is considering going into the conversion burner field should school his installation men thoroughly. It is also recognized that the gas company and the contractor have to work in very close harmony.

With the installation of conversion burners it is not only necessary to be concerned with the proper installation of the burner in the existing heating plant but also the one in charge of the work should be equipped with sufficient knowledge of proper combustion and heat travel to be able to baffle the coal designed boiler so that the burner and boiler together will make an efficient installation.

The prospective customer should be quoted on the installation of conversion equipment, the most commonly accepted practice being to submit a proposition to the prospective buyer estimating the seasonal cost of gas heating as well as stating the cost of the conversion burner installed ready to operate. Quotations covering the cost of installing conversion burners can be made easily. This makes it possible to close sales with a relatively fewer number of calls per sale because of ability to tell a prospective customer the cost of the conversion burner installed after but a preliminary survey.

Oil Burner Research Continues

The American Oil Burner Association, in cooperation with the American Society of Heating and Ventilating Engineers and Yale University, has conducted an extensive research into the application of oil burners to various types of heating units. While no radically new developments have come from this program, there have been decided improvements in installation technique and in the design of equipment tending to improve both mechanical and combustion realiability of burners.

Gas for Home and Industry

(Continued from Page 67)

plumber kept trying but seemed to be getting nowhere. Severe weather came on around Christmas at the same time that an out-of-town architect came to spend the holidays with Mr. Moore, who was forced to apologize for his cold house. It was necessary to keep fires going in the fireplaces to have any degree of comfort.

Mr. Moore asked this architect what he, his friend, would recommend about his heating. Consult a competent heating contractor, advised the architect. Put the entire matter in his hands. Let him do your worrying, and the chances are ten to one that you will not regret it.

"But how can I know who is reliable," Mr. Moore asked. "I have tried so many."

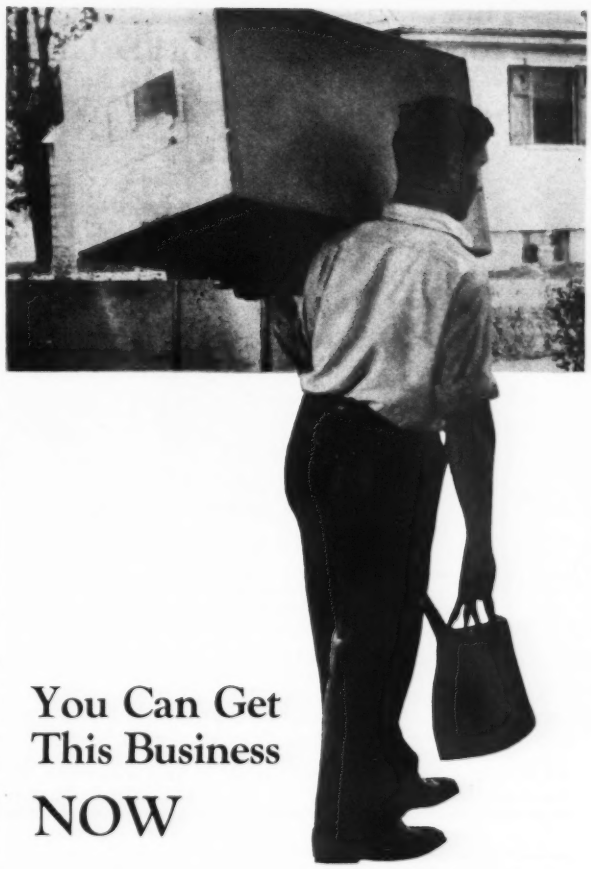
"That's easy done," said the architect. "Inquire of your local architects, your gas company, the heating contractors association, your neighbors who have successful heating systems. Don't take one persons word for it. Get a consensus of opinion as to who would be most likely to meet your requirements."

This consensus which he gathered directed him to us, and nothing pleases us more than a chance to correct a trouble job. Having heard the story of this one, we were prepared to go after it tooth and toenail, but it proved to be mere child's play—nothing more than a matter of inadequate boiler size. Our engineer checked the installation from all angles as to piping layout, valves, load of radiation, boiler size, gas supply, Btu. value of gas furnished, and his verdict was—two additional sections needed on the boiler. With this additional capacity added, pressure was raised quickly, every radiator heated from end to end, and Mr. Moore felt that at last he had what he had been looking for in a heating system; not a perfect heating system with a lot of fancy furbelows, but a simple system that would assure him of comfort, cleanliness, and convenience. Relieved, for a time at least, of further worry and expense on his heating, he proceeded to carry out his long cherished plans to modernize his basement as shown in the pictures.

Gas equipment has also solved the problem in this territory of many other installations similar to that of Mr. Moore's. In the last few years a large number of one pipe steam heating systems were installed here in small residences. Hand-fired, such systems prove annoying, as they are hard to regulate, and the house is too hot one minute and too cold the next. With such a system, gas-fired and automotically controlled, however, the owner not only has the advantage of automatic heat but he is making a cheaper class of equipment give him improved results.

The local gas company urges the use of gas for heating and industrial purposes where it is utilized by equipment designed to burn gas efficiently. A gas boiler must pass the tests of combustion engineers. Gas conversion burners must also pass such tests, but, it is in the selection and installation of equipment that mistakes are made.

In the local bakery, shown here, gas is used for many purposes. The building is heated by two high pressure gas-fired boilers and unit heaters, thermostatically controlled. In these two boilers a recent experiment and

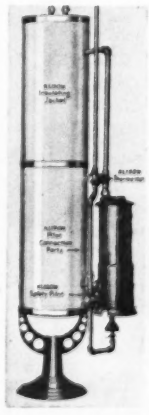


AUTOMATIC HEAT SECTION

You Can Get This Business NOW

The KLIXON Kit contains a flow line thermostat, a safety pilot, and a 3-ply air-cell asbestos boiler jacket. With a kit and a bag of tools you can walk in to almost any home on the gas lines and get a profitable job. Give housewives automatic hot water at low cost and you'll build good will. Write us your jobber's name so we can quote prices. They're attractive.

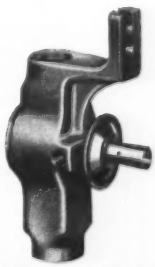
SPENCER THERMOSTAT CO.
ATTLEBORO, MASS.



You can make a handsome automatic job in a few hours with this kit. It's approved by Good Housekeeping and gas company engineers. It's safe and economical—a proven seller. You can get business with it NOW.

Left—Thermostat

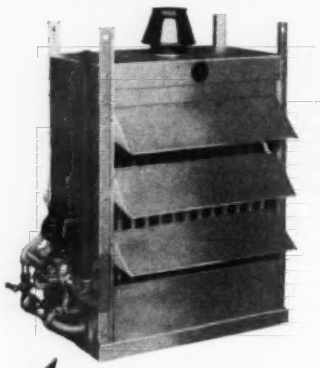
Right—Safety Pilot



KLIXON

AUTOMATIC HEAT SECTION

The
PITTSBURGH GAS-FIRED UNIT
HEATER



A canvass of the public buildings, laundries, factories, shops and many other places, right in your own territory will reveal many prospects for Pittsburgh Gas-Fired Unit Heaters.

They do not take up valuable floor space—are easy to install and will provide a maximum of heating efficiency at a fuel cost that is interesting to every prospective buyer. Let us tell you the complete story. Write us.

Write for new 32-page illustrated catalogue.

AUTOMATIC GAS-STEAM RADIATOR CO.
Brushton and Thomas Sts. PITTSBURGH, PA.

GET IN ON
"The Big Swing"
TO
AUTOMATIC HEAT

Heating men everywhere are turning to the pages of AUTOMATIC HEAT in DOMESTIC ENGINEERING for the type of information you find in the pages of this issue.

Technical discussions on stokers, oil burners, gas heat and their accessories; merchandising stories packed with worthwhile sales help and articles which assist with financing.

These are the things which you will find in AUTOMATIC HEAT, the paper that will get you in on the big swing to automatic heat that is just getting under way. Don't miss a single issue . . . . .

Read
AUTOMATIC HEAT
in every issue of
DOMESTIC ENGINEERING

change has been made in gas equipment. These boilers generate live steam which is used to maintain a uniform temperature in the dough room, the room where the dough rises (shown in photograph) and in one of the ovens. They were formerly fired by coke, and then by gas burners of a type ordinarily used for domestic heating.

Poor judgment was used in selecting such burners, for with them, it was hard to raise sufficient pressure with both boilers going, and the gas bills were excessive. Other burners were installed recently through the base of the boiler. They, of an efficient type, have effected a 25 per cent reduction in the gas consumption, all the pressure necessary can now be raised in the one boiler, and pressure is replaced so much faster, that it is no longer necessary to operate the second one. New burners are to be regulated by a motor valve and pressure control.

Whether automatic heat can best be furnished by gas, oil, or coal depends largely upon local conditions. Here, it so happens, that conditions are favorable to gas—the supply is adequate and the rate is reasonable. Our greatest drawback, however, as is probably true in all natural gas territory, is the fact that so many poor installations have been made. These poor installations are rapidly being discarded or corrected though, and the field is opening up for bigger and better gas business.

◆

Increase In Oil Consumption

A UNITED STATES Department of Commerce bulletin dated December 31, 1931, states, that the increased use of oil for the heating of buildings during recent years has been particularly noteworthy. The demand for oils used in the heating of homes has expanded yearly, being in 1930 about nine times as large as in 1923. The combined 1930 demand for commercial and domestic heating was equal approximately to two-thirds of the quantity burned as fuel in general manufacturing. The annual requirement of oil for the heating of buildings, consequently, has become one of the major items of fuel oil demand.

Notwithstanding an adequate supply and low prices, the total demand for gas oil and fuel oil decreased sharply in 1930. Nearly every industry used less fuel oil in that year. The only increases were in steamships, the food industry, the heating trade, and the U. S. Navy and Army transports. Economic conditions, together with the growing competition of other sources of energy, such as natural gas and electricity, were important factors which brought about a smaller total demand for fuel oil in 1930.

In the South Central States, where natural gas is widely distributed, the total deliveries of gas oil and fuel declined 9,638,000 barrels, or 9.86 per cent, in 1930 as compared with 1929. Railroads, steamships and petroleum refineries, the largest consumers of oil fuel in this section of the country, used considerably less fuel oil in 1930 than in the previous year. However, in this section of the country gains in demand for fuel oil in 1930 were made by the paper and wood pulp, logging and lumbering, cement, lime and food industries of the South Central States, while the heating of buildings, both commercial and domestic also offered a larger market.

SUCCESS

THAT IS IMPORTANT TO

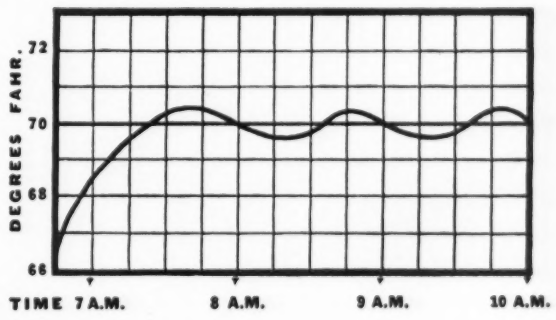
YOU

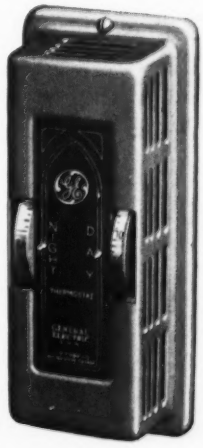
THE new General Electric Heat Regulator has met with instant and widespread favor. People never before interested in automatic heat-control have become customers or live prospects. They are talking about General Electric's new and exclusive features — features which make it possible to regulate temperature *with not more than ½ of 1 degree variation,* regardless of outside weather-conditions!

This success of the General Electric Heat Regulator is important to *you,* as a dealer, because it means new business for you. People have confidence in the familiar G-E monogram, and the products it is placed upon. They like to do business with General Electric dealers.

The regulator has many outstanding selling-points. Instead of drafts completely open or completely closed, it gives *graduated* control; thus preventing undesirable overshooting, or dropping 'way below, the temperature desired. It *anticipates* rises in temperature, and controls the heat-supply accordingly.

The single-range model sells for $85; the double-range, with electric timing for automatic day-and-night temperature-changes, for $125. Liberal discounts are offered. See this new product for yourself. Visit the distributor in your territory. Or write us direct for full information: Penn Heat Control Company, *National Distributors,* Franklin Trust Bldg., Philadelphia.





The temperature you want as long as you want it

The chart shows the amazing accuracy of the new General Electric Heat Regulator—accuracy such as never before available in household-heating. It is made possible solely by the exclusive G-E features. The room-thermostat is neat, small, and fits admirably with any decorative scheme. (Double-range model illustrated.)

GENERAL ELECTRIC

HEAT REGULATOR

FOR EVERY TYPE OF HEATING SYSTEM

"We're being asked Every Day"

"I CERTAINLY agree that the American public wants automatic heat. We're being asked about it every day.

"We're answering the questions only after we learn what a home's requirements are. Sometimes we recommend gas heat, again we suggest oil heat and still again, we recommend a stoker.

"It all depends upon the home, the owner and, to a certain degree upon his pocketbook.

"Do we read AUTOMATIC HEAT in DOMESTIC ENGINEERING? I'm afraid we've got to answer that question with another question: Does a clergyman read the Bible?"

And there, briefly, you have it. The American public wants automatic heat. It is asking the heating dealer about it. He is selling it the correct thing for its requirements and he's looking to these pages to keep him abreast of the developments, technical, merchandising and financial, in this field.

AUTOMATIC HEAT

in

Domestic Engineering

1900 Prairie Avenue ✦ Chicago, Ill.

Michigan Masters to Hold Annual Convention at Mt. Clemens in April

The Michigan State Association of Plumbing and Heating Dealers has selected April 5, 6 and 7 as the dates for its annual convention, according to word recently received from William A. Johnson, of Kalamazoo, state secretary. The convention will be held at Mt. Clemens, Mich., and headquarters will be at the Medea Hotel.

L. J. Wolf of Mt. Clemens is chairman of the convention arrangements committee. The president of the state association is Herman E. Ysberg, of Saginaw.

◆

Minnesota Convention to Open February 1

The Minnesota Retail Plumbers Association will hold its annual convention in St. Paul, Minn., on February 1, 2 and 3, according to word just received from M. T. Fox of Minneapolis, secretary of the state association. Convention headquarters will be at the Ryan hotel, and Axel Peterson is chairman of the arrangements committee. H. W. Strader of Minneapolis is state president.

◆

Philadelphia Association Re-Elects Maney J. Feeney, President

Maney J. Feeney was re-elected president of the Philadelphia Master Plumbers Association at the annual meeting of the association on the evening of January 7. William Boal, Harry L. Stilwell, George M. Hicks, Walter Raid and Howard Neilson were elected vice presidents. Robert H. Pflug-Felder was re-elected secretary, and George Moeller was elected treasurer. The following were elected directors: George F. Uber, Edward F. Quaid, James Soehle, Harold B. Asquith, Anton Jakoby and William Behm. Elvin MacKay was named sergeant-at-arms.

President Feeney presided at the meeting, and called upon Martin J. Morgan, John Fox and Edward J. Roberts to read papers that they had prepared dealing with business problems.

It was planned that Harry L. Stilwell would conduct an educational hour, but other matters consumed so much time that this was postponed until the February meeting. It is planned to have state and national association officials present at this meeting. Upon adjournment, the Women's Auxiliary served a buffet supper.

Edw. H. Rinear acted as judge of the election, and the tellers were the Messrs. Gannon, Rowe and German.

Portland Organizes to Boost Building Projects

A GROUP of business leaders have organized as the Civic Building Service Bureau, with L. C. Newlands, recent past-president of the Chamber of Commerce of Portland, Ore., as chairman. The committee represents every local government unit and almost every organization affiliated with the building industry.

S. M. Lister, building supervisor for A. E. Doyle Associates, architects, is manager and executive secretary. Included in organizations who have representation on the committee are: Oregon Building Congress; State Labor Commission; Multnomah county; city council; public utilities that serve the home; Portland clearing house; Portland Building Owners' and Managers' association; the lumber industry; Oregon chapter American Institute of Architects; Portland chapter, Associated General Contractors of America; Builders' Exchange; Builders' National Credit Association; Building Trades Council; Bankers' Mortgage association; Portland Realty Board and the property owners' division of the Portland Realty Board.

Offices of the Civic Building Service Bureau have been opened at 64 Broadway. The new organization is a non-profit, non-commercial organization designed for the sole purpose of getting property owners and prospective builders in contact with workmen in the construction industry, as a solution of the unemployment problem. Help for the man who wants to build will be offered freely in this new office. The man who has owned a lot for some time with no means of building a home, will be shown how to organize his effort to improve his property.

The home owner who realizes the need for repairs and the reasonable cost of building at present will be helped to get remodeling under way. The new heating plant, the additional room, the new laundry set-up in the basement, adding of windows, painting, landscaping—all of these things which have heretofore been a dream will now be transformed into realty through aid of the Civic Building Service Bureau.

The aim is to provide a common meeting ground where the plans for the home, the service to be required, the kinds of materials to be used and types of workmen required may all be discussed and the financing arranged for, all through one office if desired. This counsel and help will also be extended to the small business man who sees the advantage of a new or remodeled home for his

business but who has felt he could not afford such an outlay.

Field surveyors will accompany all applicants for help to the site of their property after which recommendations will be made looking toward an increase in investment and means for securing this. No one class of business will be boosted, but only responsible and accredited contractors and workmen will be considered in recommendations, and only high standard material firms will receive patronage.

The costs of operating the office has been underwritten by industrial leaders who see the necessity of getting men at work and products in use. Help is to be given on even the smallest jobs with the same interest and courtesy that applies to bigger enterprises. A revival in business, the committee believes, depends as much on many small jobs as on a few large ones.

Policies of the new organization as set forth briefly are as follows:

"The bureau is not a direct employer of labor.

"The bureau does not undertake to guarantee any financial obligation in connection with any project it may undertake to promote.

"The bureau does not undertake to interfere with established means and methods of doing business in the building industry.

"The bureau undertakes to aid, advise and help bring together various responsible agencies and owners, planning and financing construction of new or existing commercial and residential buildings as a civic enterprise for the benefit of the community at large and the building industry in particular.

"The integrity of the aims of the bureau are safeguarded by publicity; it serves no selfish interest."

Men and women who will donate time to the task of getting new work lined up will be organized in teams and captains very much like the community chest drive idea. It is hoped to enroll 1,000 volunteer workers. A house to house canvass of all residence districts, factory and warehouse owners is to be started and pledges obtained for certain amounts of improvement.

◆

North Dakota Masters to Hold Annual Convention in Fargo

The North Dakota Association of Master Plumbers has selected March 15 and 16 as the dates for its twelfth annual convention, which will be held this year at Fargo, according to word just received from Peter W. Grady, of Grand Forks, state secretary. Joseph Keller of Fargo is president of the state association. Further details concerning the convention plans will be announced later.

◆

Theodore Ahrens Addresses Seattle Master Plumbers

At the weekly luncheon of the Master Plumbers Association of Seattle, Wash., on December 15, the guest of honor was Theodore Ahrens, chairman of the board of directors, Standard Sanitary Mfg. Co., Pittsburgh, Pa. Mr. Ahrens talked very interestingly on the trend of business conditions as it affects the plumbing and heating industry and discussed the relations of the manufacturer, wholesaler and master plumber.

At the meeting held the previous week the following out-of-town guests were present: State President R. D. Minkler of Tacoma, State Secretary B. M. Richards of Everett, National Director Roy Thompson of Tacoma, and Past State President C. G. Tegenfeldt of Bellingham. The meeting was called by President B. E. Rose of the Seattle association for the purpose of stimulating interest and getting new members for the state association.

◆

West Virginia Masters to Hold Convention February 1 and 2

The Master Plumbers Association of West Virginia will hold its annual convention at Martinsburg, W. Va., on February 1 and 2, according to word just received from C. B. Swan of Huntington, state secretary. The president of the state association is R. H. Holtzworth, also of Huntington.

◆

Philadelphia Association Leaders Speak Over Radio

Through the courtesy of the Philadelphia Chamber of Commerce, Harry L. Stilwell, vice president of the Philadelphia Master Plumbers Association, spoke from radio station WTEL from 7:15 to 7:30 p. m. on January 11. Mr. Stilwell's subject was "Improving Our Homes."

On January 13, at 5:30 p. m., Maney J. Feeney, president of the Philadelphia association, spoke over station WHAT, taking for his subject, "Our Homes."

◆

Domestic Gas Heating Gains Popularity in Connecticut

H. R. Sterrett, vice president and general manager of the New Haven Gas Light Co., New Haven, Conn., points out in a recent statement that house heating by artificial gas made substantial gains in Connecticut during 1931. His statement follows:

"Despite the continuance of generally poor business conditions the gas industry in Connecticut forged ahead in 1931. The largest increase in the use of gas in 1931 has been for house heating which is becoming steadily more popular."

◆

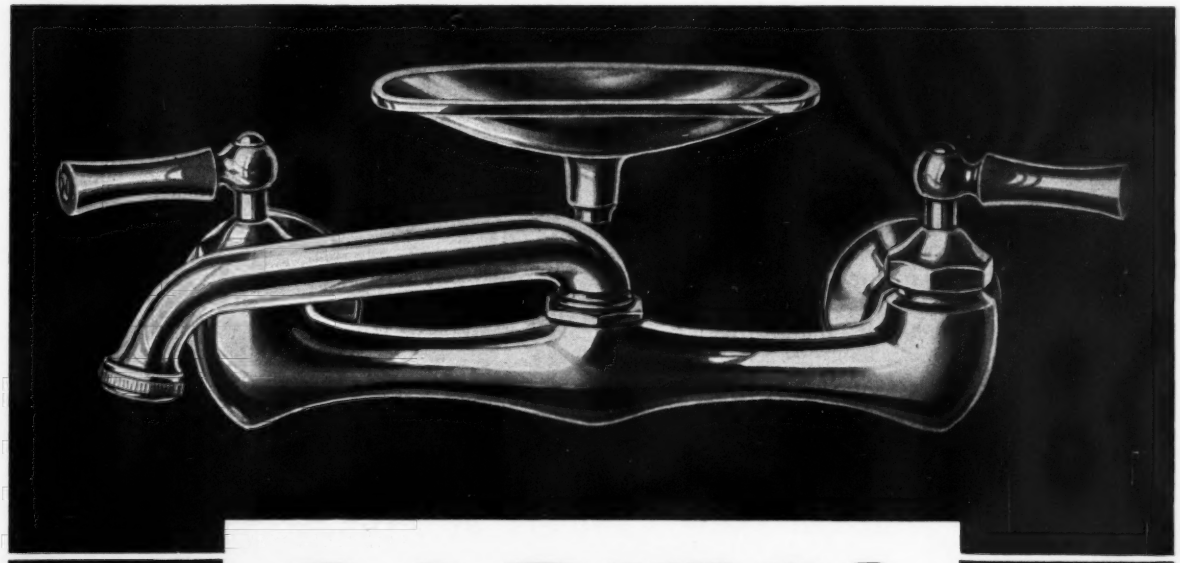
New York State Officers Visit Buffalo Local

William Wolff, president of the New York State Association of Master Plumbers, and Harry Voletsky, state secretary, both of Brooklyn, attended the regular monthly meeting of the Buffalo Master Plumbers Association on the evening of January 14. The meeting was held at one of the local hotels and the two state officers were the dinner guests of the Buffalo association.

◆

January 27 Is Date for Annual Philadelphia Ladies' Night Affair

The annual Ladies' Night of the Philadelphia Master Plumbers Association will be held on the evening of January 27, at McAllister's auditorium, 19th and Spring Garden streets, Philadelphia. Speakers of local, state and national prominence are expected to attend, and the dinner will be followed by dancing and entertainment.



CAPITOL 910 SINK FIXTURE

For homes where only the best will do, or where the housewife takes a particular pride in dressing up her kitchen, this Capitol Sink Fixture is, we believe, the handsomest and finest-built fixture anywhere obtainable.

Chrome-plated throughout, the soap dish and handles are also of metal. Or, at your option, china soap dish and china handles can be furnished.

Eight-inch centers with either female eccentric or male adjustable couplings. Especially suited to the new, low-backed sinks.

Made in plants where precision workmanship is the only kind tolerated, this fixture is as finely made as the most modern industrial methods enable. It is an aristocrat in its field.

The better plumbing supply houses throughout the country display and furnish Capitol fixtures.

Bohn Aluminum & Brass Corporation

CAPITOL BRASS DIVISION

MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS

DETROIT~MICHIGAN

How Local Associations Can Add Interest to Their Meetings

How can the local master plumbers' associations add interest and profit to their meetings and better serve their members?

Franklin E. Darling, of Fall River, president of the Massachusetts State Association of Master Plumbers, suggests that one way, which has proved highly successful in his city and in certain other communities, is to offer what he terms "educational features."

Specialists in various branches of the industry, local plumbing inspectors, gas company officials, representatives of allied industries and men with general business messages applicable to the plumbing industry, can generally be secured as speakers without expense, says President Darling.

Invite the journeymen to attend such meetings. Ask city officials to be guests.

Such lectures and talks, frequently followed by question and answer periods, are not only interesting and instructive, but many times serve to iron out misunderstandings and smooth the way for all concerned.

He suggests the appointment of a committee whose duty it shall be to secure speakers and arrange for such meetings at regular intervals.

Henry Swade

Chicago Plumbing Contractors Install New Officers at Annual Meeting

Charles E. Gawne

AT THE annual meeting and installation of officers of the Plumbing Contractors association of Chicago, held at the Auditorium hotel on the evening of January 7, the president's gavel was formally turned over to Henry Swade following his unanimous election to that office. Charles E. Gawne was elected vice-president and Henry P. Reger treasurer. Peter M. Munn is secretary of the group. The new set-up of the board of directors is as follows: Robert E. Murphy, Thomas F. Hanley, Jr., J. I. Riordan, Charles J. Stanley, Ray A. Ferguson, Rupert J. Weber, Michael Mele and James W. Fettes. In addition, the three new officers will also serve on the board.

Upon taking office Mr. Swade stated that the need for association work was never as urgent as now, adding that the most serious business problems can only be solved through united effort. He urged the membership to help the new officers by taking an active interest in the organization's activities.

When the dinner was finished the members heard reports on the past year's activities by the officers and the chairmen of the various standing committees. Entertainment was furnished between the reports. It was pointed out that the association is now in the fiftieth year of its existence, and tentative plans were announced for an appropriate celebration, to be held this spring.

Among the out-of-town guests present were: L. R. Friend, president of the Wisconsin Master Plumbers association; Walter Dusold, past president of the Milwaukee association; Jacob Schuh, Joseph Brah and Charles Pelunek, all of Milwaukee, Wis.; William F. Hildeman and C. L. Bolton, secretary of the Illinois Master Plumbers association, both of Chicago Heights.

Retiring President James W. Fettes was presented with a diamond ring by the association in appreciation of his services during the past year. The presentation was made by Joseph W. Cannon, former president of the association and N. A. M. P.

In his annual report, President Fettes stated that neither new nor modernization work had reached the hoped for volume in the city during the past year. He added that "public work" had been highly competitive.

Mr. Fettes expressed dissatisfaction with doing work for the general contractor and explained that the association was attempting to secure the separation of plumbing and heating bids from the general contract. He urged that these efforts be continued.

Referring to the Certified Plumbing movement, he stated that lack of funds had caused the association to temporarily discontinue its efforts along this line. The Regional Management conference held in Chicago last spring, he said, was not attended by a sufficiently large number of master plumbers, and he urged that the masters take a more active part in the "Selling School" which is now being arranged.

President Fettes further stated that serious inroads had been made during the year by direct-to-you competition, but expressed the belief that widespread use of price tags on material displayed in master plumbers' showrooms would help to overcome this. He explained that the National Association of Master Plumbers is in favor of the use of price tags.

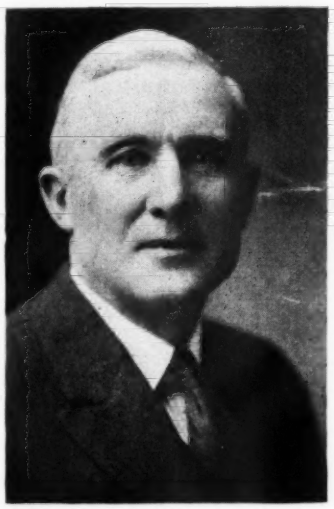
In closing, Mr. Fettes explained that the association's revenue had been considerably reduced and in this connection stated that payment of the national and state per capita tax would be limited to those members whose local dues were paid in full or who were not more than thirty days in arrears. He also pointed out that the association office had reduced expenses as much as possible.

Rupert J. Weber, a director of the National Association of Master Plumbers, said that in his opinion the lost members could be regained through the concentrated efforts of the officers, directors and the individual members. He said that to his way of thinking many of these

members left the association due to a lack of knowledge on their part as to the value of the membership in the group.

Michael Mele read the minutes of the regular monthly meeting in December, as well as the minutes of the board of directors meeting on January 7. Peter M. Munn read the auditor's report on the financial condition of the association and he also rendered his annual report as secretary. He described in detail the activities and services of the organization.

The following standing committee submitted reports: Arbitration, C. A. Dreier, chairman; certified plumbing, T. W. Merryman, chairman; collection, Michael Mele, chairman; conference, William J. Lang, chairman (read by Mr. Mele in Mr. Lang's absence); educational, Ray A. Ferguson, chairman; insurance, C. W. Alcock, chairman; legislative, Robert E. Murphy, chairman; merchandising, George J. Feldkamp, chairman; municipal, J. C. Naughton, chairman; vocational training, Charles F. Taffe, chairman.



P. W. Donoghue

What the N. A. M. P. Is Doing to Help Its Members

THE following message is directed to the entire membership of the National Association of Master Plumbers by the officers and board of directors of the association in order that each member may know what the association is doing and the position it has taken in regard to matters of importance to the industry.

The report from the National office deals at length with direct-to-consumer competition, giving the findings and recommendations of the board in this matter, and since this is of such paramount importance, this phase of the report appears separately on Page 40.

The report also calls attention to a resolution adopted at a recent board meeting, calling upon manufacturers and wholesalers to eliminate loose and unfair extension of credit. (This resolution was published in full on Page 98 of the November 14 issue of DOMESTIC ENGINEERING, in connection with its endorsement by the Central Supply Association at that association's recent meeting.)

The balance of the report from the officers and directors of the N. A. M. P. follows:

Volume of Business of Our Members

Your National officers are desirous of getting reliable data on the volume of business done by the members of our National association, and herein request our members to furnish their state secretary when called on, a statement of the gross volume of their merchandising purchases.

Separation of Contracts on Government Work

This year, through an active Conference Committee, we are attempting to have the National Government specifications for public buildings revised, separating the mechanical equipment in public buildings from the general contract, and seeking the prequalification of bidders on public work.

We have joined with the Heating and Piping Contractors National Association and the Electrical Guild of North America in a co-operative movement to this end.

Construction League of the United States

Your National association has joined the above organization. Its membership consists of the American Institute of Architects, the American Engineering Council, the American Institute of Steel Construction and twenty of the National Employers Organizations in the construction industry.

The object of this league is to stabilize the construction industry and to correct the many evils that have crept into it over a period of years. Two of the chief aims of this organization are the revision of the Sherman Anti-Trust Law, and the prequalification of bidders on public work.

Gas Appliance Sales

The 49th annual convention at Milwaukee approved of the merchandising principles adopted by the American Gas Association. These principles are published on pages 169-170 of the 49th Annual Convention Proceedings of the National Association of Master Plumbers.

Immediately following our National convention, the National office gave publicity to these merchandising principles through the business papers and communicated with state presidents and state secretaries requesting that our local associations throughout the country co-operate with their local gas companies in putting these principles into effect. Further, we requested them to inform the National office

. . . A *policy with a*

An announcement of importance to the wholesaler and plumber

Brunswick discontinues the manufacture of 1¼" sheet covered seats and will offer only a quality line of full 1½" seats at prices comparable with the levels of other competitive 1¼" seats.

Brunswick

constructive purpose

● Analysis of present conditions affecting the manufacture and sale of sheet covered seats must force the conviction that the introduction of the competitive 1¼" sheet covered seat was ill-advised. It has reduced what formerly was a quality market to one of inferiority. Through indiscriminate consumer advertising of low resale prices it has brought about loss of profits formerly enjoyed in this field by plumber and wholesaler.

● BRUNSWICK advertising and sales promotion will be directed entirely to create and enlarge the demand for *seats of quality.*

● We believe that determination of the margin of profit to the distributor and plumber on our product is a prerogative that belongs to them and should not be restricted by manufacturers' advertised consumer retail prices.

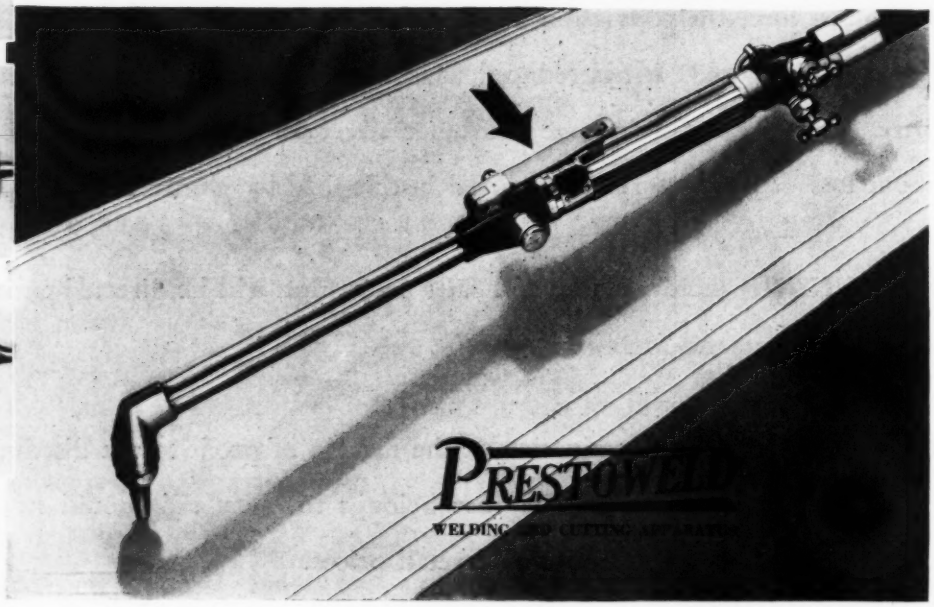
● It is our conviction that distributors and plumbers will welcome announcement of this policy—made possible by BRUNSWICK resources—as a constructive step toward the return to a better and more profitable market for sheet covered closet seats.

The Brunswick-Balke-Collender Co.
623-633 South Wabash Avenue, Chicago

CLOSET SEATS

There's More THAN EFFICIENCY *in* Prest-O-Weld Blowpipes

Ten seconds is all you need to change blowpipes



WHEN you buy a Prest-O-Weld, you get more than a blowpipe scientifically correct in design. You get, in addition, a blowpipe with other features which help you to do your work easily and comfortably.

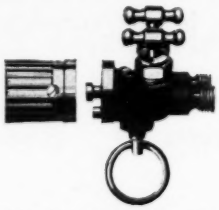
In the Type C-105 Cutting Blowpipe, for instance, the snap latch on the cutting lever prevents thumb-cramp on long jobs. Once your cutting is started, you snap the latch, and the oxygen jet flows freely and smoothly until the job is done.

Even the location of the cutting lever helps you make cleaner cuts. Easily accessible on the top of the blowpipe rather than under it or on the side, it prevents wobbling and crooked cutting when manipulated.

The Monel metal valve stems can't rust, stick, or bend and slow up your work. The patented conical nozzle keeps the seat from getting nicked and causing leakage.

And so on through the whole list of conveniences which make Prest-O-Weld Blowpipes a favorite with good welders everywhere.

Your jobber carries Prest-O-Weld Blowpipes and will be glad to explain their many advantages to you.



The Prest-O-Weld Detachable Valve Body is one of the features of the Type C-105 Cutting Blowpipe, illustrated. This device enables you to switch to a large or small welding blowpipe in ten seconds, without disconnecting the hose or using a wrench.

Prest-O-Weld Type C-105 Cutting Blowpipe complete $42.00

Prest-O-Weld Type C-105 Handle Assembly (same as above but without valve body) $34.00

Prices slightly higher west of Rocky Mountains.

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

126 Producing Plants UCC 627 Warehouse Stocks

IN CANADA, DOMINION OXYGEN COMPANY, LTD., TORONTO

District Offices

Atlanta, Baltimore, Birmingham, Boston, Buffalo, Chicago, Cleveland, Denver, Detroit, El Paso, Houston, Indianapolis, Kansas City, Los Angeles, Milwaukee, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Salt Lake City, San Francisco, Seattle, Tulsa

LINDE OXYGEN · PREST-O-LITE ACETYLENE · OXWELD APPARATUS AND SUPPLIES · UNION CARBIDE

if their local gas companies refused to co-operate with them in arriving at an understanding based on these principles. Reports to the National office from all over the country show that genuine interest is being taken by our membership on this important subject. Understandings have been arrived at in practically every district where committees from our local organizations have met with the gas company representatives in this constructive movement.

Membership

The members of the National association are to be congratulated for their loyalty and perseverance in carrying on in the face of business conditions of the past two years. At no period in our history has the time been more opportune to make a determined effort to induce every master plumber to become affiliated with our National association and help in the solution of our problems. Your active effort to help increase our membership is requested.

Plumbing and Heating Industries Bureau

The National Association of Master Plumbers is wholeheartedly in favor of the Plumbing and Heating Industries Bureau. The Bureau, an organization that represents all three branches of the industry, and which, in the past, has done an immeasurable amount of good, has not had the support of the entire industry to the extent to which it is entitled.

Again this year your National board of directors has voted to continue its financial and moral support of the Bureau. We, therefore, request all of our members throughout the country to call to the attention of their manufacturers and wholesalers this valuable aid to our industry, and urge these companies to give their financial support to the Bureau.

Fiftieth Annual Convention of the N. A. M. P.

The 50th annual convention of the National Association of Master Plumbers is to be held in New York City on June 20, 21, 22 and 23, 1932. This convention is to be celebrated as the golden anniversary of our organization.

Your convention committee, whose chairman is Matthew J. Kennedy, president of the Greater New York Master Plumbers Association, is making arrangements for this convention which we expect will far exceed any of our previous conventions in attendance.

The convention proceedings and exhibit will be held in Madison Square Garden. The Pennsylvania Hotel has been selected as convention headquarters. We sincerely hope that every member of our National association will make his plans and arrangements now to attend our golden anniversary convention and visit the city of the birth of our National organization during the week of June 20, 1932.

Your National Office

The permanent headquarters of the National Association of Master Plumbers is now located in the Shoreham building, Washington, D. C. Any communications, complaints or criticisms will receive prompt attention and consideration by your National Officers.

The long years of trouble-free service delivered by WEISTEEL Shower Cabinets are of great importance to the plumber as well as to the owner. Plumbers who install WEISTEEL Cabinets keep the profit they make on the sale because they are not compelled to spend it in service work.

WEISTEEL Integral Cabinets cannot leak because they are securely welded into a single unit of steel. They are easily installed anywhere, on any kind of floor, against any kind of walls. Any standard make shower head and valve can be used with these cabinets.

Our fifty-five years of experience in the manufacture of metal building products is back of the creation and production of these cabinets. Full details about WEISTEEL Shower Cabinets will be furnished at your request without obligation or cost.

Henry Weis Mfg. Co., Inc.

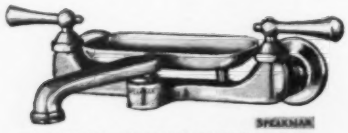
ELKHART, INDIANA

Licensed Manufacturers

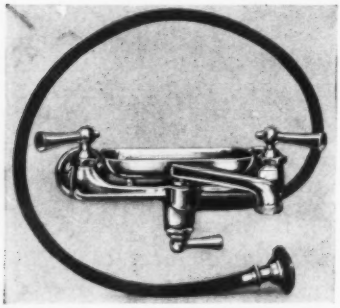
Sink Fixtures

Speakman *quality*

for All Sinks and at Prices to Fit All Pocketbooks



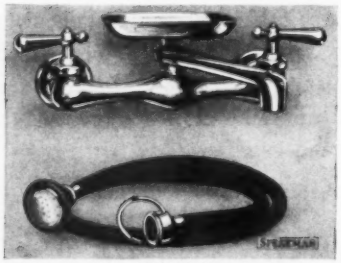
K-5503-M—SPEAKMAN Grace-line Sink Fixture (Design Patented)



K-5504-M — SPEAKMAN Grace-line Sink Fixture, with hose and spray head

K-5502-M—SPEAKMAN Diamond Sink Fixture (Design Patented)

K-5506-M—SPEAKMAN Utility Sink Fixture



K-5507-M—SPEAKMAN Utility Sink Fixture, with hose and spray head attachment

THE Grace-line Sink Fixture, because of its fine, harmonious lines and beautiful design, has been selected above all others by the International Nickel Company to be sold with the new Monel Metal sink. The General Electric Company also has featured the beautiful Grace-line Sink Fixture — made for the finest sinks.

The Diamond Sink Fixture is also at home in the most modern kitchens. Every line in this fixture follows the cutting of a diamond — the diamond effect being further achieved by the reflective surface of sparkling Speakman Chromium Plate.

The Utility Sink Fixture is made with every attention having been given to the details of design. It has the same sturdy construction of both Grace-line and Diamond Sink Fixtures.

There is a lot of replacement work in the sink fixture field and every woman wants and will buy those things which add to the appearance of her kitchen and make her housework easier. Literature designed to lay before your customers complete details of the Grace-line, Diamond and Utility Sink Fixtures will be imprinted with your name and address, and forwarded promptly.

SPEAKMAN COMPANY
Wilmington, Delaware

SPEAKMAN *SHOWERS AND FIXTURES —*

South Dakota M. P. Association Elects C. M. Carlson President at Annual Convention

THE twelfth annual convention of the South Dakota Retail Plumbers Association was held at the Widman hotel, in Mitchell, S. Dak., January 6 and 7. In the absence of President Frank McCarthy and Vice President Luck, George C. Hunt was elected acting chairman.

The meeting was held in conjunction with the South Dakota Associated Contractors and the South Dakota Architects and Engineers Association.

C. Emil Carlson

The meeting place and the time for the next annual convention will be decided at one of the meetings to be called next summer.

C. Emil Carlson of Sioux Falls was elected president of the association for the coming year. Clifford F. Smith, also of Sioux Falls, was re-elected secretary and treasurer for the fifth year. The following directors were elected: Joe Vinatiere, Yankton; C. L. Breedlove, Madison; G. V. Swanson, Mitchell; A. F. Luck, Watertown, and E. A. Pugsley, Huron.

Harry L. Stevens, national director, Hutchinson, Kans., bucked a head wind and a snow storm, flying across country from Hutchinson to attend the convention as a representative of the National Association of Master Plumbers. With Mr. Stevens were James Gray, Kansas field representative; Charles Stevens; and Orville Vaught, the pilot of the plane.

Mr. Stevens was the principal speaker, talking on the activities of the National association, particularly the work being done by the National officers at the present time to meet the changing conditions in the industry. Mr. Stevens went into detail regarding recent investigations into merchandising problems in the City of Cincinnati, Ohio, and told of the co-operative plan being worked out by both master plumbers and wholesalers to better distribution conditions.

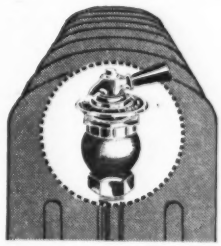
The co-operative gas merchandising plan adopted at the last national convention was described in detail.

Mr. Stevens also told of new plans being formed to make better credit conditions among all groups of the industry. The idea is that more strict regulation of credit would do much to make better business conditions in the contracting branch as well as in the wholesale and manufacturing groups.

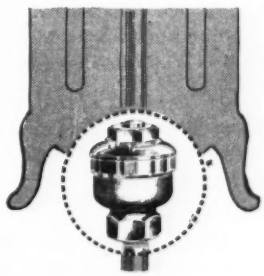
In view of the fact that there are so many perplexing questions to be solved in business, and especially in the plumbing and heating business, much of the time was taken up with round table discussion of ways and means of solving these problems.

It was generally agreed that much good would result in the sale of gas equipment, provided the master plumber put forth an energetic sales plan, such as canvassing

THERE IS NO SECRET



There is no secret why B & J return traps do not give trouble. They are built to a 30 year standard of practical experience. Every trap is tested before shipment under the worst conditions it could ever encounter in service.



30 years of unfailing performance have built 30 years of satisfied users for Barnes & Jones Vapor and Vacuum Systems of Heating. Those That Install Them, Know.

BARNES & JONES INC.

127 Brookside Avenue, Boston, Mass.

You should have this 32 page catalog

Send, without obligation, your book describing Barnes & Jones Vapor and Vacuum Systems of Heating.

Name.....

Company.....

Street.....City.....

State.....

335

NEW LOW PRICES

EFFECTIVE AT ONCE

GLOCO RED BAND TANK HEATERS

No. 80

YOUR wholesaler has good news for you. The famous Gloco Red Band Tank Heaters can now be obtained at prices as low, or lower than you pay for ordinary tank heaters.

Sweeping reductions in list prices have been made on Gloco flat top models—also on type No. 280.

Rising demand for Gloco Tank Heaters and rapidly increasing volume have made possible these lower prices.

No let down in quality. Glocos have not been changed or cheapened. They are manufactured with the same high standards that have made them the world's leading Tank Heaters.

Glocos are still unconditionally guaranteed. Glocos are still shipped fully crated.

Gloco exclusive improvements will continue to make it the outstanding Tank Heater for 1932. See your Wholesaler at once. He will give you the full details.

EVINS F. GLORE & SON
Grand Central Terminal Building, New York City

GLOCO

RED BAND TANK HEATERS

and salesmanship, and thereby eliminate the expensive salesmen and commission men now used by the utility company.

It was agreed that one convention a year was not enough to keep up the enthusiasm and interest necessary to get the best results, and plans were made to hold two or three meetings during the summer months in different parts of the state.

Convention Dates

January 25-29, 1932—A. S. H. V. E.—The annual meeting of the American Society of Heating and Ventilating Engineers to be held at Cleveland, Ohio, with headquarters at the Hotel Statler. Also the Second International Heating and Ventilating Exposition, at the Cleveland Auditorium.

February 1 and 2, 1932—WEST VIRGINIA—The annual convention of the Master Plumbers Association of West Virginia, to be held at Martinsburg.

February 1, 2 and 3, 1932—MINNESOTA—The annual convention of the Minnesota Retail Plumbers Association, to be held at St. Paul, with headquarters at the Ryan Hotel.

February 2, 3 and 4, 1932—OHIO—The annual convention of the Ohio Master Plumbers Association, to be held at Cincinnati, with headquarters at the Netherland Plaza Hotel.

March 9 and 10, 1932—E. S. A.—The Spring meeting of the Eastern Supply Association, to be held at the Hotel Astor, New York City.

March 14 and 15, 1932—KANSAS—The annual convention of the Kansas Master Plumbers Association, to be held at McPherson, with headquarters at the Hawley Hotel.

March 14, 15 and 16, 1932—INDIANA—The annual convention of the Indiana Association of Master Plumbers, to be held at Muncie, with headquarters at the Hotel Roberts.

March 15 and 16, 1932—NORTH DAKOTA—The twelfth annual convention of the North Dakota Association of Master Plumbers, to be held at Fargo.

April 5 and 6, 1932—NEW YORK—The annual convention of the New York State Association of Master Plumbers, to be held in New York City, with headquarters at the Hotel Pennsylvania.

April 5, 6 and 7, 1932—MICHIGAN—The annual convention of the Michigan State Association of Plumbing and Heating Dealers, to be held at Mt. Clemens, with headquarters at the Medea Hotel.

April 11-16, 1932—A. O. B. A.—The ninth annual convention and show of the American Oil Burner Association, to be held in Mechanics' building, Boston, Mass. Convention headquarters at the Statler hotel.

May 9, 10 and 11, 1932—N. P. S. A.—The annual convention of the National Pipe and Supplies Association, to be held at Pittsburgh, Pa., with headquarters at the William Penn Hotel.

May 16, 17 and 18, 1932—H. & P. C. N. A.—The 43rd annual convention of the Heating and Piping Contractors National Association, to be held at Detroit, Mich., with headquarters at the Book-Cadillac Hotel.

June 21, 22 and 23, 1932—N. A. M. P.—The 50th annual convention of the National Association of Master Plumbers, to be held in New York City, with headquarters at the Hotel Pennsylvania.

COMING TRADE EVENTS

January 23, 1932—The annual dinner-dance of the Plumbing, Heating and Factory Supply Men's Credit Association of Northern New Jersey, to be held at the Swiss Chalet, Rochelle Park, N. J.

January 27, 1932—The annual Ladies' Night of the Philadelphia Master Plumbers Association, to be held at McAllister's audtiorium, 19th and Spring Garden streets, Philadelphia.

February 1-6, 1932—Six-Day Short Course for plumbing inspectors, instructors, master and foreman plumbers, to be given by the College of Engineering, University of Wisconsin at Madison, Wis., in co-operation with the Wisconsin Master Plumbers' Association.

June 20, 21, 22 and 23, 1932—Exposition of plumbing, heating and allied products, in connection with the 50th annual convention of the National Association of Master Plumbers in Madison Square Garden, New York City.

Now!

BURKS
SUPER-TURBINE
PUMPS
Only one moving part

NEW
LOWER
PRICES!

EFFECTIVE
JANUARY FIRST —1932—

PUMPING UNITS

WATER SYSTEMS

CONDENSATION
RETURN UNITS

FOOT VALVES

WATER SYSTEMS

ACCESSORIES

NO PULLEYS
PLUNGERS
SPRINGS
BELTS
GEARS OR
VALVES

AND—

NO REDUCTION IN QUALITY!

Manufactured Under Burks U. S. Patents Nos. 1619286 and 1686549

Mr. Plumbing Contractor:

Build your business on a firm foundation by selling a *quality product* on which you can make a *fair profit*. Burks Super Turbine Pumps are built *deliberately* to do away with *after-sale-servicing*. They are *not* designed for price-selling, and yet—the price is entirely consistent with the honest pump values built into them. The same *high standards* of mechanical perfection and masterful performance are retained in the entire Burks line. There will be *no reduction in quality*.

Your better customers—those who know good equipment when they see it—will appreciate the *superiority* of the Burks Pump and *demand the best*. The *new lower prices* will appeal to the *thrifty buyer* who is always alert to get his money's worth. The *highest praise* for this wonder pump comes *from owners* who have *invested their money* in them.

Right now is the *opportune* time to line up behind the Burks Pump. *Push the sale* of Burks Pumps in your territory, and Burks Pumps will *push your name* into an enviable position as a *real pump Dealer*. While opportunity beckons, may we not suggest that you write for new price list and other details *NOW?*

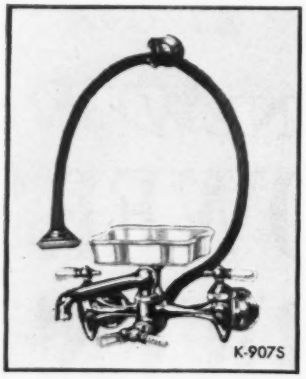
SEND FOR **NEW PRICE LIST** APPLYING TO GENERAL CATALOG No. 31

DECATUR PUMP COMPANY DECATUR, ILLINOIS.

"Standard" DOUBLE DUTY FITTINGS . . . . . TIMELY REPLACEMENT ITEMS

This is the year to make each sale count most — most in satisfaction to your customer, most in profit for you. Replacing worn-out brass fittings is the surest way. Brass goods sales will assume an important part in your business for 1932. Replace with "Standard" double-duty, fittings — fittings that with one installation cost, give extra duty, extra convenience, extra service, extra satisfaction — and extra profit.

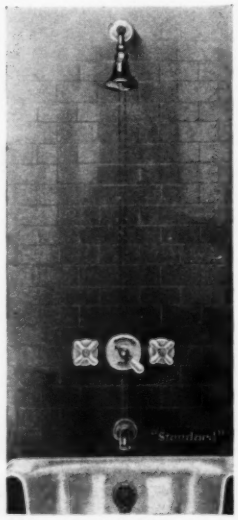
Present conditions can bring profit — with "Standard" double-duty fittings.



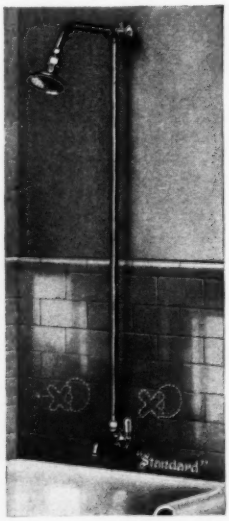
K-907S—Double sink faucet with transfer valve directing tempered water either to the spout or the spray.

K-660—To be installed after tub is in. Original over-rim spout is removed and new spout is put on same supply line. Water is diverted either to the tub or the shower.

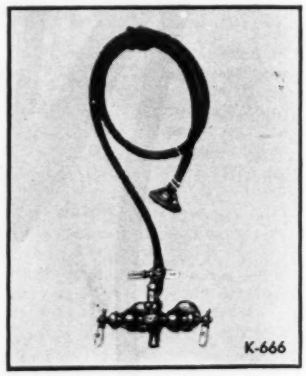
K-666—Bath tub faucet to replace original faucet with no change of supply lines. Transfer valve diverts tempered water to either tub supply or to shampoo fitting, which can also be used for shower purposes.



No. 49



K-660



Combination No. 49—Transfer valve used with but one set of supply valves, diverts water already tempered to either tub or shower.

K-712—Gives the advantage of single spout lavatory supply with added use of shampoo fitting. Transfer valve directs water either to spout or spray.

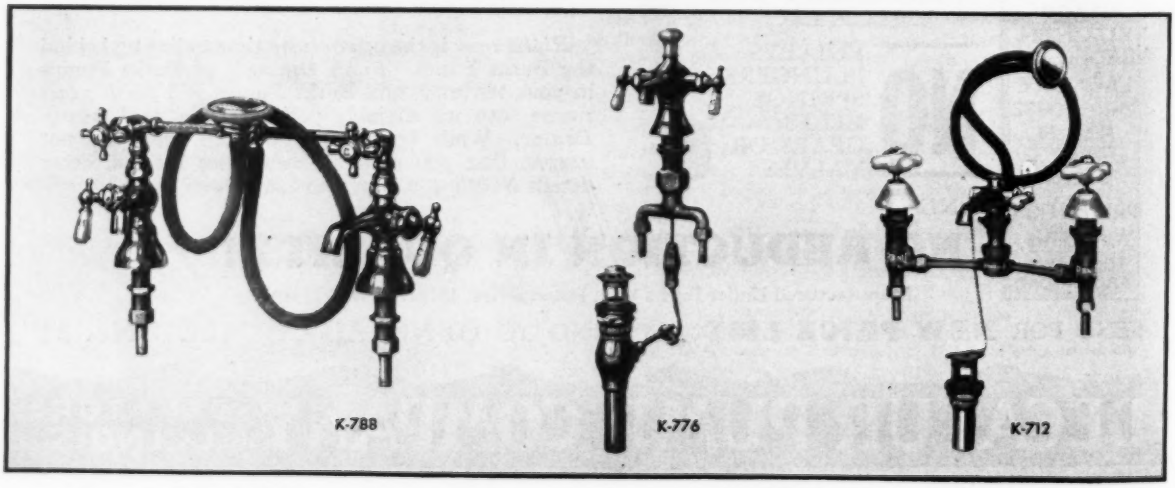
K-776—An excellent fitting for the small lavatory, as it furnishes all necessary working parts in single fitting.

K-788—Single hot and cold water faucets, arranged with outlets at the top for shampoo fitting. An exceptionally good item for barber and beauty shops as is the K712.

"Standard" BRASS GOODS

Standard Sanitary Mfg. Co. 106 Sixth Street, Pittsburgh

DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION



The Metal Market

	Jan. 18	Avg. Dec., 1931	Avg. Oct., 1931	Jan., 1931
PIG IRON—				
No. 2 foundry, Chicago	$16.50	$16.60	$17.20	$17.50
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb	1.50c	1.50c	1.60c	1.65c
Blue annealed sheets, No. 10, Pittsburgh, per lb	1.75c	1.85c	1.85c	2.05c
*Hot rolled annealed sheets, No. 24, Pittsburgh, per lb.	2.35c	2.40c	2.40c	2.35c
Galvanized sheets, No. 24, Pittsburgh, per lb	2.80c	2.90c	2.90c	2.90c
TIN—				
Straits tin (spot) New York	21.70c			
LEAD—				
E. St. Louis	3.55c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	11½c	Copper, light	4 c
Block tin pipe	15½c	Heavy crucible copper	5 c
Brass, light	2½c	Zinc, old	1¼c
Brass, heavy yellow	3 c	Lead, heavy	2⅝c
No. 1 comp. red brass	4 c	Solder joints (close cut)	3¾c
Heavy copper and wire	4¼c		

NOTE: Prices are those quoted on Monday of this week.
*Comparisons are with old classification No. 24 black sheets.

Cleveland Organizes Heating Group

Preliminary steps have been taken for organization of a Cleveland group of coal and related equipment interests to co-operate with the Committee of Ten. A tentative organization was effected at a recent meeting of about twenty representatives of the related industries held at the Union Club, Cleveland. The functions of the committee were explained by Managing Director Oliver J. Grimes, of Chicago.

Among those on the organization committee are: B. Y. Kinzey, manager of the Heating and Piping Contractors Cleveland Association; H. S. Sharp, vice president of the Henry Furnace & Foundry Co.; Whitney Warner, of W. H. Warner & Co., and Wirt Griggs, branch manager of the Minneapolis-Honeywell Regulator Co.

◆

Death of William H. Littlefield

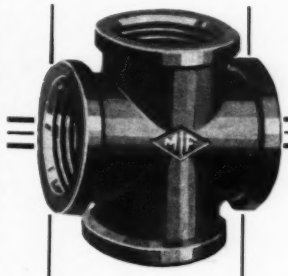
William H. Littlefield, a member of the plumbing and heating contracting firm of Wilson and Littlefield, Watertown, N. Y., died at his home on December 31, after an illness of six months. He was born in Clayton, N. Y., February 1, 1867. At the age of 22 he came to Watertown, where he formed a partnership with Fred B. Wilson. The business for three years was located in King street, but 25 years ago the firm moved to its present location at 215 Court street.

Mr. Littlefield was a member of the Watertown Lodge of Elks and had a wide circle of friends in his city and surrounding territory. Surviving are his widow, four daughters and one brother.

◆

Death of Bernard J. Lyons

Bernard J. Lyons, proprietor and general manager of the firm of J. H. Lyons & Company, plumbing contractors, of Erie, Pa., died recently at his home in that city, following an illness of six weeks. He was a native of Erie and had been engaged in the plumbing contracting business for the past 25 years.



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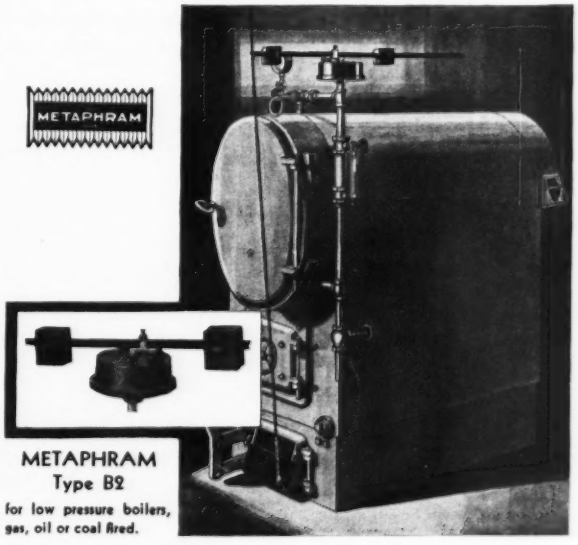

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Descriptive Bulletins on Request

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Fig. 1—Interesting plumbing problems were encountered in remodeling this old residence into a home for convalescent women. The old fixtures removed included wooden laundry trays and copper lined bath tubs

A Clever Remodeling Job

By A. J. PARKS

THE two principal starting points for the remodeling of homes are (1) the home that is to be remodeled into a more modern, up-to-date place for the family to live in, and (2) the home which for various underlying causes must be remodeled into a different type of dwelling than it was originally designed for.

In the latter class, generally, it will be found that economy in the work of reconstruction is of very great importance. Occasionally, however, we run onto a job that is different, where cost does not have to enter the calculations as a chief factor in determining the work.

Such an instance as this has just come to our notice, in the transforming of an old residence into a beautiful, restful home for convalescent women.

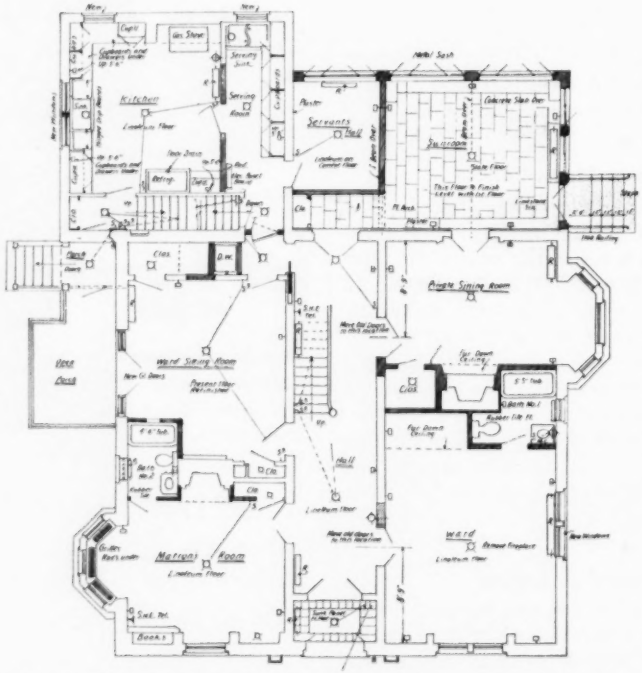


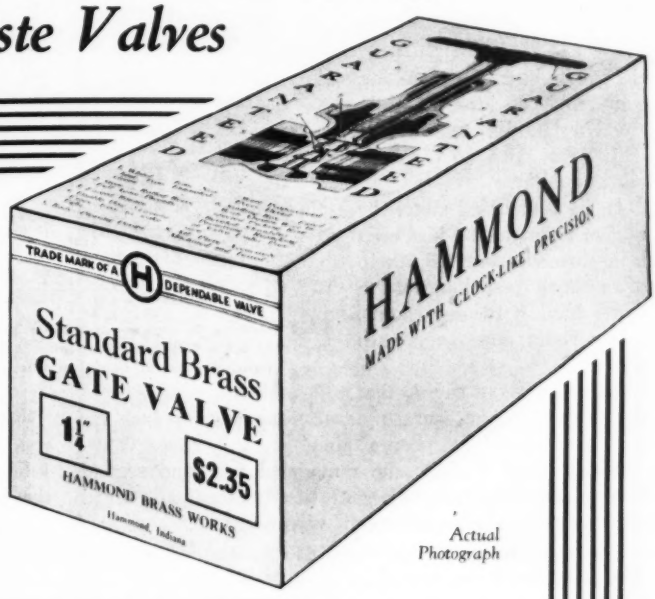
Fig. 2—Here is the first floor plan. The new walls and partitions are shown in heavy sections and the old partitions which were removed are indicated by dotted lines

Fig. 1 shows Howood House in its restored state. Originally it was built, well out in the outskirts of the city, as the home for a family of wealth, and it so remained until the death a year or so ago of the last surviving member.

So well satisfied were they with the conveniences of fifty years ago, that the house had never been wired for

An Innovation in Merchandising

Standard Brass Gate Valves and Compression Stop and Waste Valves



Actual Photograph

HERE is something new in the merchandising of gate valves and compression stops and wastes, something that makes them easier to see, easier to stock, easier to handle and easier to sell!

In the past it's been difficult to find valves of the right size, it's been difficult to tell at a glance *and get* the right price and it's been impossible to hand a valve that wasn't soiled or worn looking to a customer.

Now HAMMOND removes all these obstacles. Each one of HAMMOND's complete line of Standard Brass Gate Valves and each one of HAMMOND's Compression Stop and Waste Valves now comes to you individually packed in an attractive, covered box. The box is of a color that will not soil easily. It will speed up sales and facilitate stocking and handling.

Each is plainly labelled with size and consumer price of valve. Boxed thus, the valves are easier to sell. The price is readily seen and therefore not questioned. And this innovation in HAMMOND Standard Brass Gate and Compression Stop and Waste Valve merchandising is *at absolutely no extra cost to you.*

HAMMOND makes an accurately machined, tested, sand blasted and hand dipped valve and it reaches the jobber and contractor in perfect condition because of this new method of boxing.

You couldn't buy a better standard brass gate valve at any price. HAMMOND's Standard Brass Gate Valves are of parallel seat construction with double discs against seats, accomplished by a wedging device which acts uniformly on all parts of the discs. Bonnets are made of forged brass.

You couldn't buy a better compression stop and waste valve at any price.

HAMMOND's Compression Stop and Wastes have full waterway, full opening, extra pipe clearance, broad faced seat, packing nut, encased discs, gasket under bonnet, external type bonnet and all parts accurately machined and tested.

Insist upon HAMMOND *boxed* Standard Brass Gate Valves and Compression Stop and Waste Valves from your jobber. Sold only through the jobber.

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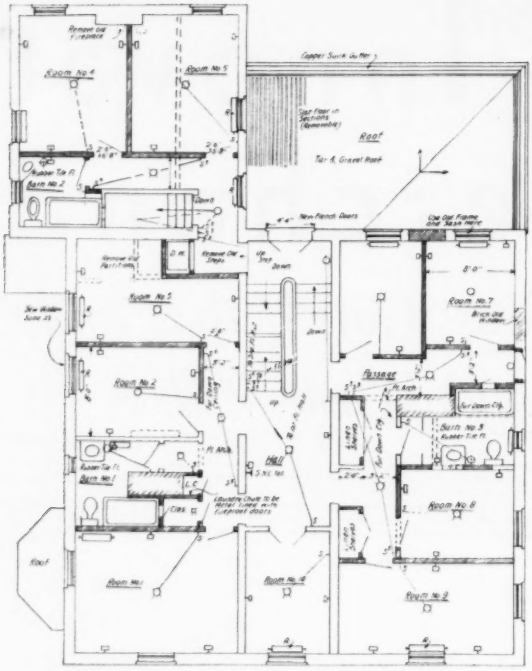


Fig. 3—Here is the second floor plan. Note by comparing this with the first floor plan the bathrooms were arranged so that common stacks could be used

electric lights, the plumbing comprised a kitchen sink, wooden laundry tubs and a bath room with an old copper tub in it.

In its remodeled state, the twelve room house has been transformed, with the help of a small addition, into a home having twenty rooms, a sun room and seven bath rooms.

It goes without saying that the original rooms were of large dimension or such results could not have been attained.

Figs. 2 and 3 show the remodeled first and second floor plans. The remodeling of the basement and third floor was equally as thorough and effective.

We want to point out a feature concerning Figs. 2 and 3 that will be found helpful in the laying out of these remodeling jobs. Ordinarily, four plans would be required in properly showing this remodeling—two floor plans showing the original layout and two floor plans showing the remodeled layout.

The result is here accomplished with two floor plans, by showing the original walls and partitions in the usual manner, with new walls and partitions shown in solid black, and old partitions that have been taken down shown by broken lines.

It seems to us that we have seldom seen a remodeling job more cleverly done than this one. We believe that results have been accomplished with a minimum amount of changes.

Much of the remodeling centers around the bath rooms. This is generally true of almost any remodeling job, and is much more true of the plumbing than of the heating.

The original heating for the house was accomplished by a hot air system. This has been replaced with a modern radiator heating system.

Part of the skill in making remodeling layouts comes in making use of original doors and windows. It is a difficult proposition, however, to locate bath rooms at points where they are required, to be located so that bath rooms on two or more floors will use the same stack, and at the same time use existing

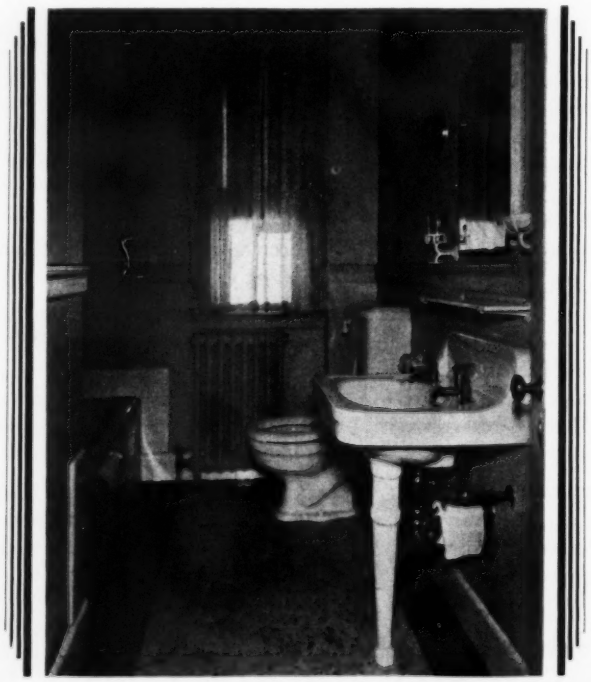
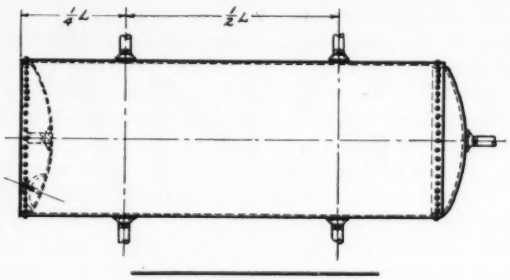


Fig. 4—This is a view of bathroom No. 3 on the second floor. Note how space was provided for the tub



Caution!

As many inferior storage tanks are now being offered to the trade, the plumber is warned to

compare the specifications as well as the price.

Note particularly, the THICKNESS of the SHELL and HEADS; the RIVET SPACING; and GENERAL CONSTRUCTION.

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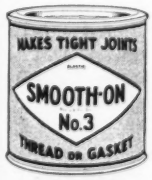
Utilizing Smooth-On No. 3 to stop leakage at cracks, flanged and threaded joints by merely painting over the open spots and utilizing partial vacuum to pull the Smooth-On No. 3 into the interstices and effect a lasting seal is a favorite practice with heating contractors. This process is very simple and 100 per cent effective where infiltration can be detected only by pressure drop as shown on the gauge.

Treating every suspected location with Smooth-On No. 3 is sure to catch the offender, stop other leaks that are just starting, and costs very little for both the labor and the Smooth-On No. 3.

Try this idea on vacuum lines or lines which can be put on vacuum, and particularly on the heating pipes, coils, etc., when starting up at the beginning of the season.



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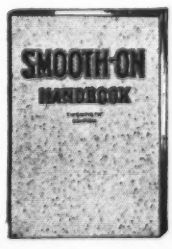

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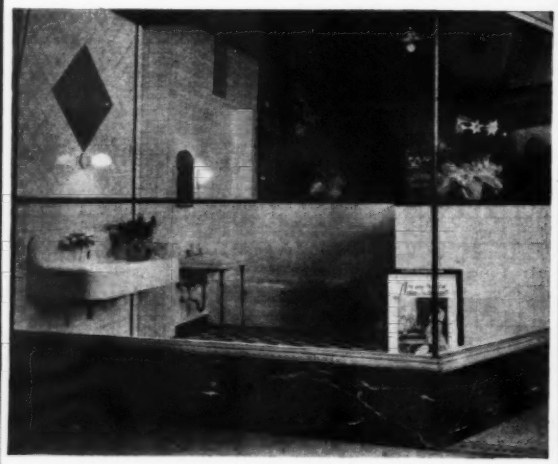

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AMBLER Waltile, which comes in sheets 32″x48″, with a highly glossed surface, ready to apply, makes an admirable background to set off your plumbing fixtures. There is a choice of seven colors available. Cap and base to match, together with necessary accessories for application are furnished by us.

Ambler Marbleite, an exact reproduction of finest selected marbles, is another K&M product which can be used to advantage for window display or store fronts as shown above.

These materials are regularly sold through Building Supply Dealers as an adjunct to our line of rigid Asbestos Shingles and fireproof Linabestos Wallboard. If you cannot find an Ambler dealer in your locality write us direct for prices.

Ambler Asbestos Products include the well-known Ambler Aircell on which we have put special emphasis during recent months with our "EXTRA PROFIT" story to the steamfitter. Probably you have received a copy of this material; if not, it is yours for the asking.

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P. S. K&M Asbestos Insulation materials will be graphically displayed at booths Nos. 283-285, International Heating & Ventilating Exposition, Cleveland Auditorium, January 25—29. Should you attend be sure to look us up.

doors and windows with a minimum amount of pulling out of old partitions and building new ones.

Out of the seven bath rooms installed, the original windows were used for four of the bath rooms. Both bath rooms on the first floor required new windows in the remodeling, but only one of the three bath rooms on the second floor.

In the kitchen both windows at the sink are new, also the one in the serving room over the sink.

One feature that strikes us as clever is the way in which room has been provided for the bath tub in each one of the five bath rooms on the two lower floors. This is shown clearly in Fig. 4.

The stack arrangement has been well handled also. Bath room No. 2, first floor, bath room No. 1, second floor, and a third floor bath room are on one stack. On another stack are bath rooms No. 1, first floor, No. 3, second floor, and one on the third floor. The stack for No. 2 bath room, second floor, also serves the kitchen sink and the basement laundry tubs.

Thus, in making the remodeling layout, seven bath rooms together with the kitchen and laundry are handled by three stacks. Knowing how difficult it is in a remodeling program to make the various required conditions match up, we think unusual cleverness is shown in the use of so small a number of stacks.

There is no doubt whatever, that in the reconstructing of this residence much money was laid out. This

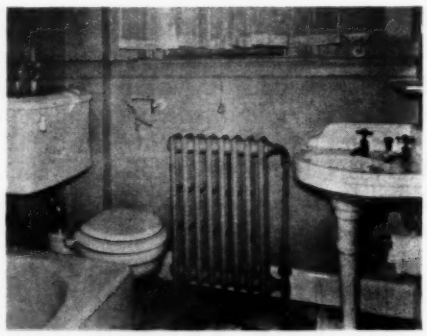

Fig. 5—Here is bathroom No. 2 on the second floor. In addition to the plumbing being remodeled, the heating plant was changed from an old warm air installation to a modern hot water system

was justified for several reasons. In the first place the location of the residence was ideal—in the heart of the city, and yet as secluded and quiet as its new purpose required. In the second place, the original building was erected in the most substantial manner, and so could withstand the overhauling that came to it, resulting in a modern building which will stand for many years. In the third place, the property as a home for convalescents is well endowed, so that the original cost of the remodeling is of secondary importance as compared to its fitting into the fine purpose that its owner had in mind.

Thus we see that the conditions on which these remodeling programs are based, must enter into the problem, in figuring the outlay. Each one of such problems that we have ever seen worked out is of necessity different than any other problem.

ANSWERED

A few of the Questions of most general interest asked by readers and answered by our engineers

In this issue

1—Three Hot Water Storage Tanks in a Large Institution are to be Cleaned Periodically to Cover Insurance Requirements. How can this be done

2—How to Determine the Size of a Boiler

—1—

To the Editor:

Three hot water storage tanks are to be installed in a large institution, where precautionary regulations to cover insurance requirements make it obligatory to clean the boilers periodically. This will have to be done by shutting off one boiler at a time for cleaning, using the other two while this is being done.

Kindly show by means of a drawing, how you would connect these boilers, including valves, and making the piping arrangement as simple as possible.

Connecticut. X. Y. Z.

The requirement in connecting the three horizontal boilers is to make the connections and the valving so that any one of the three boilers may be disconnected from the system, drained and cleaned, while the other two boilers are in operation.

An isometric drawing of the layout has been made in order to show the idea more clearly.

Valving in connection with hot water supply boilers should be accompanied with every precaution for the safety of the boilers. It is a very easy matter to make a mistake in opening and closing valves, especially where there are so many, and after being closed it is a very easy matter to forget to open them again. Such negligence or mistakes may easily result in closing all means of expansion, and this may result in the explosion of the boiler.

To avoid such consequences, each of the boilers should be provided with a relief valve.

The periodical testing of these relief valves should be made a routine matter, just as the draining and cleaning

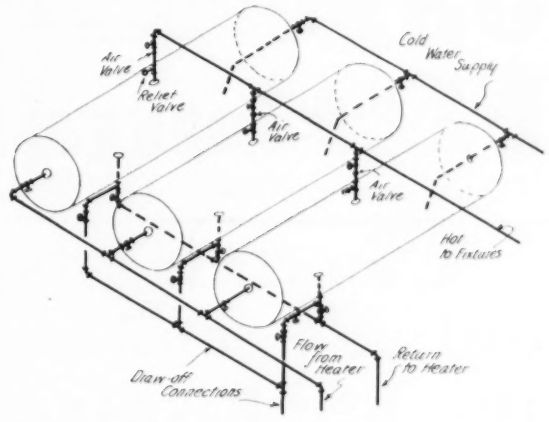

Fig. 1

of the boilers is. Such precautions will often avoid trouble.

In order to get air on top of the water in the boilers when it is desired to drain them, it will be necessary to use air valves.

—2—

To the Editor:

After the amount of radiation in a building has been determined how is the size of boiler determined? Some say you should add 100 per cent; others state that 25 to 50 per cent is sufficient. One company told me that for 640 sq. ft. of radiation a boiler rated at 1350 sq. ft. is needed, but that this boiler would have to be forced in cold weather so that 1600 sq. ft. was the rating necessary to give good results. Is this so?

On an open type hot water heating system a 2½-in. pipe will carry 300 to 475 sq. ft. of radiation; on a closed system of hot water heating would a 2-in. pipe carry the same amount of radiation satisfactorily? And would a 1-in. pipe carry 72 to 125 sq. ft. on a closed

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"Warco" Automatic Air & Vacuum Valves

system if a 1¼-in. pipe is required on an open system for the same amount of radiation?

I have a textbook by a dependable author but he does not make these points clear to me.

New York. C. H.

If you are purchasing a boiler from a reputable manufacturer and one which is guaranteed to actually produce its rating then all you need to add to the actual radiator load is 25 per cent to allow for pipe losses, and the boiler so rated will carry the job provided the chimney and other conditions are as they should be. Some designers add another 25 per cent which they term reserve capacity for heating up a cold system in the morning, and this would bring the addition up to 50 per cent of the radiator surface.

We do not know of anyone who advocates 100 per cent addition but it must be remembered that when the so-called radiator surface is taken it should be the equivalent radiator surface for all the items which the boiler has to carry such as hot water heating, indirect heaters, wall radiators, etc., which should all be redused to equivalent direct radiation by dividing the actual Btu. delivered by each, by 240, and adding the results.

Another way to check the size of boiler which is a good one when in doubt is to compute the number of pounds of coal to be burned per hour on a zero day and then to divide this by the number of pounds to be burned on a square foot of grate which usually is assumed as between 6 and 8 lb., for ordinary small boilers. Then a boiler should be selected which has a grate area somewhere around the result obtained at the rate of combustion selected. For example, if a system with 500 sq. ft. of steam radiation is also to supply hot water at a rate, say, of 100 gallons per hour, what would be the proper grate area for the boiler if a combustion rate of 7 lb. per sq. ft. is not to be exceeded?

500 sq. ft. rad. at 240 Btu	120,000 Btu.
100 gallons water 100 x 8 1/3 x 100 deg.	83,333 Btu.
Total	203,333 Btu.
25 per cent piping	50,833 Btu.
Total heat supplied	254,166 Btu.

and, with 8,000 Btu. received out of each pound of coal burned, the number of pounds for a zero day will be

$$254{,}166 \text{ Btu.} \sqrt{8{,}000} \text{ or } 31.7 \text{ lb.}$$

which, at a combustion rate of 7 lb. per sq. ft. of grate will give a grate area of

$$31.7/7 \text{ or } 4.53 \text{ sq. ft.}$$

In reply to our correspondent's second question we would advise that a 1-in. hot water riser on a closed system is rated as supplying 110 sq. ft. of radiation, if the radiation is set 5 ft. above the boiler, 120 sq. ft. if 15 ft. above, 135 sq. ft. if 25 ft. above, and 150 ft. if 35 ft. above; a 2-in. riser will supply 450, 525, 600 and 750 sq. ft. of radiation under the same respective conditions.

We would advise our correspondent to obtain a regular pipe-sizing schedule for closed hot water heating systems from one of the manufacturers of accessories for same.

Questions Answered and Discussed by Readers

How the Question Was Answered

The following question was asked in the issue of December 26, and the accompanying answer is by a reader:

A storage tank 4 ft. by 12 ft. which contains approximately 1,100 gallons carries a pressure of 60 lb. and is half full of water. How much water can be used from the tank before the pressure is reduced to 35 lb. Also, if the tank is cut off from the city pressure, how many cubic feet of air will be required to maintain the pressure at 35 lb. if water is drawn off at the rate of 35 gallons per minute?

How Would You Answer This Question?

If a building has a heat loss of 20,000 Btu for 1 degree difference between the inside and outside temperatures, what temperature of air must be delivered to maintain 70 deg. Fahr. when the outside temperature is 35 deg. Fahr. if the quantity of air is 30,000 c.f.m. and the number of people in the building is 1,200?

Answers based upon your experience, and suitable, will be paid for and published in the February 20 issue.

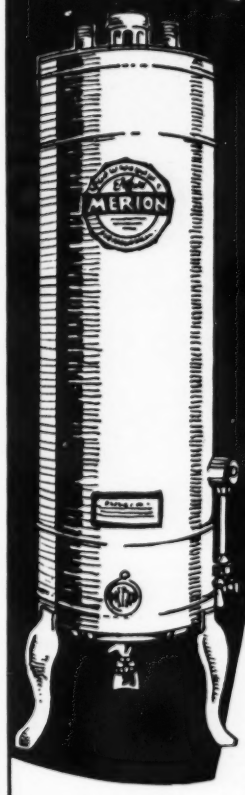
—1—

APPARENTLY reference is made to the ordinary pneumatic water supply tank which is supplied by city pressure. It is not stated whether or not any initial air pressure is used. If no initial air pressure is used, the tank is full of air when the water begins to flow into the tank and this air is at ordinary atmospheric pressure or 14.7 lb. per square inch, absolute. When the tank is half full of water, this air has been compressed into a volume just one-half its original volume and, consequently, its absolute pressure is doubled, or 14.7 lb. × 2, which is 29.4 lb. per sq. inch, absolute. As the tank shows 60 lb. (gauge) or 74.7 lb. absolute, when it is half full of water, it follows that initial air pressure must have been used.

Let us now see what the initial air pressure must have been. If the air originally occupied the entire tank, it occupied just twice as much volume as it does when the tank is half full of water and the air is at 74.7 lb., absolute. Then if all the water were allowed to flow out of the tank the air would expand back to twice its volume and the absolute pressure would be half of the pressure when the water half filled the tank, or 74.7 lb., / 2, which is 37.3 lb., absolute, or 22.9 lb., gauge. The matter of ascertaining how much the volume of the air will be when it has reached 35 lb., gauge, or 49.7 lb., absolute, can now be computed. If the volume of air when it completely fills the tank at 37.3 lb., absolute, is taken as 100 per cent, the volume when it reaches 49.7 lb., absolute, will be 37.3 / 49.7, or 75 per cent; therefore the water in the tank will be 25 per cent of the tank contents, which is taken as approximately 1,100 gallons. (Actually it is somewhat more than this, especially if the bumped heads are taken into consideration.)

MERION

WATER HEATERS



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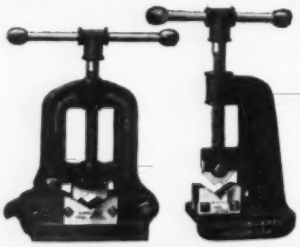
Vises exactly suited to special conditions

There are four different types of pipe vises in the ARMSTRONG BROS. Line of "*Better* Pipe Tools": The Standard Hinged Vise with the *unbreakable* drop forged steel hook, the *Patented* Chain Vise, and the Heavy Duty and Open Side Vises illustrated here.

The ARMSTRONG BROS. Hinged Vises are made in sizes that range from ⅛ to 7 inch pipe capacity. Bodies and bases are of Certified Malleable Iron; jaws of hardened tool steel with milled teeth, heat treated, oil tempered and tested. Screws and handles are of steel with double wear thread.

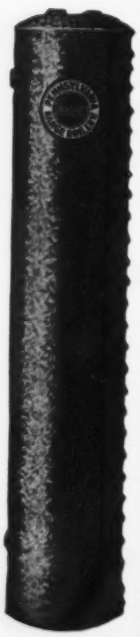
The ARMSTRONG BROS. Open Side Vise is made of similar stuff and within its range combines strength, quick action, convenience and solid gripping power.



Write for Catalog P-10 which describes the "BETTER Pipe Tools" distinguished by the Arm-and-Hammer Trade Mark.

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Ave.
CHICAGO, U. S. A.

London Branch
ARMSTRONG BROS. TOOL CO., LTD.
35 Upper Thames Street
London, E. C. 4, England



Well Known, High Grade Merchandise

PAYS ITS OWN WAY

Every item you stock must carry its share of overhead and sales expense. The easier they are to sell the less it costs to sell. And there lies the reason for the trade's acceptance of

PENNSYLVANIA RANGE BOILERS

Sold Only Thru Jobbers

Complete line of ALL WELDED and RIVETED AND WELDED Galvanized Boilers.

Jobbers: Write us for sample of any boiler for 30 day inspection.

Pennsylvania Range Boiler Co.
Est. 1895
24th & Washington Ave. Philadelphia, Pa.

So there will be 25 per cent of approx. 1,100 gallons in the tank, or about 275 gallons when the pressure reaches 35 lb. gauge.

This may be proved by the original statement of the problem that when the pressure reaches 60 lb., gauge, or 74.7 lb., absolute, the tank is half full. In this case the volume of the air should be 37.3 / 74.7, which gives 50 per cent, just as stated. The second part of the question has two answers: first, the quantity of air at 35 lb., gauge, which is necessary to force into the tank to replace the water being drawn off at the rate of 35 gallons per minute, and second, the amount of free air that will have to be compressed to make up the quantity of 35 lb. air which it is necessary to supply.

The quantity of air necessary to be supplied at 35 lb., gauge pressure, to replace water being drawn off at the rate of 35 gallons per minute will be, of course, the same as the amount of water being drawn off as there is no change in pressure in the tank while this process is in operation. Since there are almost exactly 7½ gallons to a cubic foot the quantity of 35 lb. air required will be 35 / 7½ or 4 2/3 cu. ft. per minute. The amount of free air required to make this 4 2/3 cu. ft., when compressed to 35 lb., gauge, will be

4 2/3 / (14.7 / 49.7) or 15.8 c.f.m. of free air.

In the above the 14.7 is the absolute pressure of the free air and the 49.7 is the absolute pressure of the 35 lb., gauge air which is forced into the tank.

Of course these results are not exact to the last degree as the air, when compressed, will slightly increase in temperature, which in turn will add to its pressure, but it has been assumed in the foregoing calculations that the air will remain at practically a constant temperature or will soon lose the heat caused by compression either through this heat being absorbed by the water jacket of the air compressor or by the water in the tank after the air enters the tank and comes into contact with the water.

It should be pointed out that theoretically the greatest amount of service may be obtained from a compression tank when the initial air pressure is made the same as the minimum operating pressure which, in this case, seems to be 35 lb., gauge. That the tank is not being used to its utmost is indicated by the fact that 25 per cent of the water tank capacity is occupied by water retained in the tank when the tank pressure has fallen to 35 lb. Now it is hardly permissible to go down to the point where every bit of water will be expelled from the tank owing to the danger of getting air into the lines but it might be quite allowable to use 30 lb. initial air which would leave a small amount of water in the tank when the pressure falls to 35 lb., or the lowest working pressure. This can be proved as follows:

With 30 lb., gauge (44.7 lb., absolute), initial air pressure, the air, when compressed to 60 lb., or 74.7 lb., absolute, will occupy

44.7 / 74.7 or 60 per cent of the tank leaving 40 per cent of the capacity occupied by water,

and when the pressure falls to 35 lb., gauge, or 49.7 lb., absolute, the air would occupy

44.7/ 49.7 or 90 per cent leaving 10 per cent of the tank contents water.

It will be seen that in this case the amount of water it

is possible to draw from the tank between the maximum pressure of 60 lb., gauge, and 35 lb., gauge, will be

40 per cent — 10 per cent or 30 per cent

whereas, in the working pressures given in the problem, only 25 per cent could be utilized, the remaining amount of water lying dormant in the tank and serving no useful purpose until the tank were cut off from the main, but with the advantage in the second case that there would be enough pressure in the tank to discharge 90 per cent of the water without the addition of any further air.

The Fundamentals of Air Conditioning

(Continued from Page 29)

cooling in residences can be confined to re-circulated air. If, however, the construction is such that infiltration is practically eliminated, then the new air taken in should be confined to that required for ventilation only, and the rest of the air used in cooling should be recirculated.

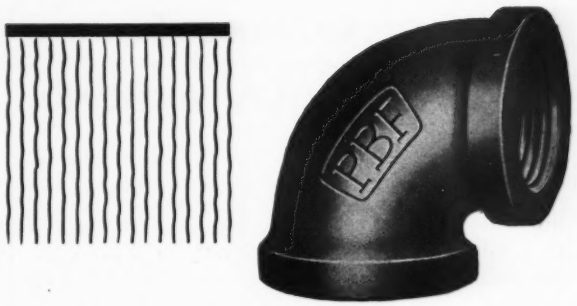
The localization of the cooling effect may be accomplished in several ways. First, there may be a central cooling plant from which the cooled air is recirculated to the various rooms as required. If this method is used, the circulating ducts should be provided with tight dampers which may be closed off and the ducts should be insulated between the source of supply and the rooms. Another practical method is to have a central cooling plant in the basement, from which cooling water is circulated to the various rooms and there passed through either direct or indirect coolers, the air in the room being circulated through these coolers, supplying only enough new air for ventilation requirements. A third method of cooling is to provide unit coolers for the various rooms which may be supplied with individual refrigerating machines or directly with ice. A decentralized system of this kind, of course, may require greater attention than the centralized plant.

Control Methods for Ice Melting

(Continued from Page 27)

faces of the chamber should be simply painted or sprayed with asphaltum. Such painting will shed water or mist while not making the surface impervious to vapor pressure built up in the insulation.

Large tanks used for ice melting should be insulated by applying thoroughly waterproofed and vapor sealed insulation tightly against the tank sides. The insulation against these tanks suffers greatly from greater dewpoint temperature penetration which is worse than in the case of ice chambers, since the tanks usually have lower temperatures than air in the chamber. Voids between the tanks and insulation must be avoided to prevent condensation filling the voids. In ice tank practice it has been found best to set the tank on pure well asphalted, sheet cork. The tank sides are studded with 3-in. by 4-in. studs on edge to which is tacked 2-in. or 3-in. sheet cork, well sealed on the exterior. Between the tank and the insulation the 4-in. void is well filled with regranulated cork and the top of the insulation well sealed against vapor or water infiltration, with two plys of wood



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are
RELIABLE

PHOENIX BRASS FITTINGS CORP.
IRVINGTON, NEW JERSEY

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TRADE MARK REG U.S. PAT OFF

Greatest Efficiency Yet Reached!

ENTIRELY new and different design in an efficient, permanent Automatic Hot Water System. Lifetime copper heating element is submerged in vitreous enameled tank. Tests reveal an efficiency never before attained—dependable, continuous supply of clean, hot water assured for the life of the building.

NEW FOLDER FREE

Write today for illustrated literature and complete details which point the way to profits for you.

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3600 Oakwood Ave. YOUNGSTOWN, OHIO

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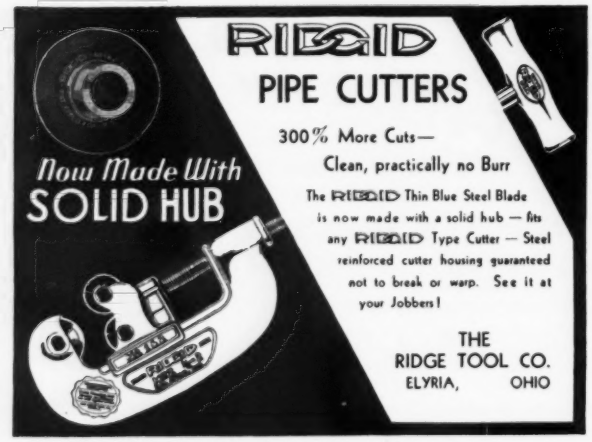
commemorating our
TWENTIETH ANNIVERSARY

From 1912 to 1932, we have designed and manufactured a line of mechanical rubber specialties, and now at the end of our first 20 years of service to you, we offer Catalog "F" as proud proof of the service we have been, and will continue, to render you.

Ask your jobber for a copy of our 20th Anniversary Catalog.

LAVELLE RUBBER COMPANY
320 W. Illinois St. CHICAGO

RIGID PIPE CUTTERS



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300% More Cuts—
Clean, practically no Burr

The RIGID Thin Blue Steel Blade is now made with a solid hub — fits any RIGID Type Cutter — Steel reinforced cutter housing guaranteed not to break or warp. See it at your Jobbers!

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ELYRIA, OHIO

SUPERIOR SHOWER HEADS

Why?

No holes to clog.
Uses 50% less water.
Adjustable spray.
Works on low pressure.

LOW PRICED
Ask your jobber.

MILWAUKEE FLUSH VALVE CO., Milwaukee, Wisc.

EXPANSION HUB SOIL PIPE

When—*without extra cost*—you can get this pipe which is recognized everywhere as a real improvement, why use any other. Ask your own wholesaler.

Manufactured to uniform specifications and sold by

ALABAMA PIPE COMPANY
ANNISTON FOUNDRY CO.
INTERSTATE FOUNDRY COMPANY
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THE WETTER PIPE CO.

sheathing having waterproof felt paper in between.

In the chamber type of bunker in which the ice is stacked under the spray heads and over the water collecting pan, it is advisable to build an interior frame box from the pan top edge to the ceiling and some 4-in. away from the insulation. This will insure against sprays beating against the insulation. A canvas curtain over the doorway suffices while a good tight refrigerator door penertating the cork walls must be provided for an entrance.

In considering the advisability of ice or other means of refrigeration for air conditioning work it would be clearer to all, especially the layman, if load and capacity were expressed in ton hours. Much of the present confusion would be avoided were we to abandon talking about 24-hour rates and applying them to shorter hourly loads. Thus a ton hour refrigerating load would be equivalent to melting about 80 lb. of ice per hour or the capacity of a one ton refrigerating machine. One ton of ice is equivalent to 26.5 ton hours of refrigerating capacity.

The usually expressed 150 ton load is really a 150 ton hour load, the equivalent of 6.25 tons of refrigeration or 5.62 tons of ice. The rate of refrigeration is expressed directly in terms of capacity.

Home Air Conditioning — Its Problems and Possibilities

(Continued from Page 23)

silica gel and alumina which are of a mineral nature and full of very minute pores which have the inherent characteristic of absorbing moisture from the air and retaining the moisture in liquid form within the substances. Such an installation requires two chambers, so that while one chamber is dehumidifying the air passed through it, the other chamber may be reactivated by driving the moisture to outdoors by the application of direct heat, the absorption bed cooled to atmospheric temperature by means of air or cold water pipes, and thrown back into service, while the other chamber is being reactivated.

The illustrations connected with this article show what has been done in one residence in a suburb of Chicago. In this instance, mechanical equipment has been employed. Figs. 4 and 5 show some of the refrigerating machinery and controls used for cooling and circulating the brine through the cooling coils seen in the lower right hand corner of Fig. 3. This is a large installation and cost was no item. The owner's idea was to obtain comfort in his home, all other considerations not withstanding. As a result, it is not possible to use this job as a complete indication of what the common residential installation will be. However, it does tell what now is being done under certain circumstances. It outlines pictorially what is possible at the present time by way of applying mechanical equipment to residential installations where complete air conditioning in both winter and summer is demanded.

◆

Lima, Ohio, Association Elects Officers

The Master Plumbers Association of Lima, Ohio, has elected George D. Jones as its president for the ensuing year. The other officers are: Orley B. Johns, vice president, and T. G. Ewing, secretary-treasurer.

London Engineers Hold Regular Meeting

The Institution of Heating and Ventilating Engineers of London, England, held a sessional meeting on January 6 at Swedenborg hall. A paper on "Coal Gas as a Fuel for Hot Water Supply and General Heating" was read by E. L. Oughton, a member of the Institution.

◆

Seattle Golf Association Elects New Officers

At a recent meeting of the Seattle, Wash., Plumbing and Heating Golf association held at the Rainier Golf and Country club, the following officers were elected for the year 1932: B. D. Cruickshank, Walworth Co., president; W. G. Montgomery, Northwest Plumbing Supply Co., secretary; John R. Owens, Northwest Lead Co., treasurer. Larry Massart, Earl Jones and Milton Morton were elected trustees.

The retiring officers: Myron McElwaine, as president; Clarence Jones, as secretary, and Al Kendall, as treasurer, were tendered a rising vote of thanks for their work the past year.

The golf matches in the afternoon preceding the dinner and election of officers brought out the following winners: Class A, Dick Cochran, 87-7—80; Class B, R. W. Nickalson, 92-20—72; Class C, Larry Massart, 97-26—71.

◆

Plumbers Inspect Sewage Disposal Plant

Escorted by H. Pommerenck, plumbing instructor for southern Wisconsin, a group of master and journeymen plumbers from Baraboo and Watertown, Wis., visited the sewage plant at Madison, Wis. John C. Mackin, superintendent of sewage disposal, acted as host to the plumbers. The trip was organized by Mr. Pommerenck to acquaint the plumbers with the work of sewage treatment so that they could better understand the importance of plumbing installation to the efficient operation of the sewage plant.

◆

Northern Colorado Masters Elect Officers

At the annual election of officers of the Northern Colorado Master Plumbers Association, held recently at Greeley, Colo., Ben Bernzen of Boulder was re-elected president; A. R. Hall of Greeley, vice president; and E. H. Horton of Greeley, secretary-treasurer.

◆

Death of George B. Worlock

George B. Worlock, plumbing inspector and superintendent of buildings of Watertown, N. Y., for several years, died at his home on January 8. Mr. Worlock for several years operated a plumbing shop at the corner of Benedict and Arsenal street. In 1920 he gave up the business and became city plumbing inspector and later was also named superintendent of buildings.

◆

Coburn Co. Suffers Fire Loss

The Coburn Co., dealer in plumbing and heating, Park and College streets, Beaumont, Tex., suffered a serious loss by fire recently. A. J. Coburn places the loss at about $12,000 including fixtures and equipment. His stock of catalogs and sales literature was also destroyed.

CORROSION meant REPLACEMENT

In the handsome Georgia State Capitol, shown above, it was necessary to replace drain-pipe of ordinary materials with Duriron Acid-Proof Drain-Pipe, on account of the action of corrosive wastes.

Duriron Pipe was recommended and installed because it is proof against acids or corrosives in the drainage and can be expected to outlast the building in which it is placed.

On jobs like this, you have the say-so, because "you are the doctor" on replacements.

Wherever there are acid wastes to be handled, you can make profits—more profits—by selling the outstanding merits of Duriron Pipe. Write us or see complete Duriron price list in Domestic Engineering Catalog.

THE DURIRON COMPANY, INC.
410 N. Findlay St. Dayton, Ohio

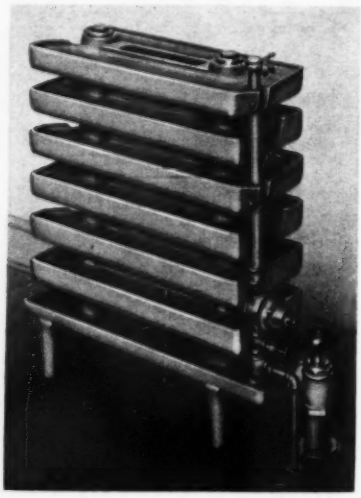
DURIRON ACID PROOF DRAIN-PIPE

Items for STORE, SHOP *and* JOB

THE second annual heating and ventilating exposition is to be held next week in Cleveland in conjunction with the meeting of the American Society of Heating and Ventilating Engineers. Those who are in attendance will have displayed for their information the latest developments in the field. Here in these columns is a bi-weekly display of progress for the information of our readers.

Improvements Made in Humidifier for Homes

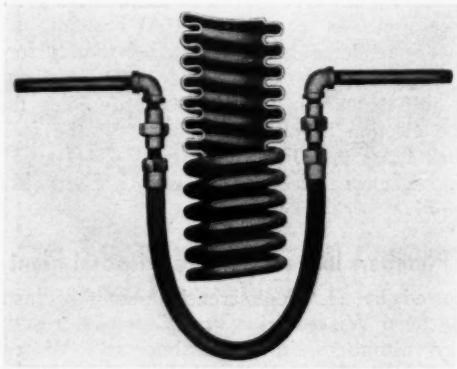
An announcement has been made of improvements in a humidifying radiator. The item may be used with steam, hot water or vapor systems. It is designed to be completely automatic in operation when it is once



adjusted. The guarantee indicates it will maintain 40 per cent relative humidity. A constant flow of water over the evaporating surfaces is provided for as a means of minimizing deposits with hard water.

Flexible Metallic Tubing for Oil Burners

The development of a flexible metallic tubing has been announced. The item was designed for fluid connections between moving parts, for the absorption of vibrations



and for the conveyance of liquids, semi-liquids, steam or gases. Among other applications, it is said to be used on oil burner installations. The fittings are brazed or welded to the ends of the tubing. At present the hose is being manufactured with internal diameters of 3/16, ¼, ⅜, ½, ¾ and 1-in. It is declared that the tubing is seamless and that it has withstood pressures of 10,000 lb. per sq. in.

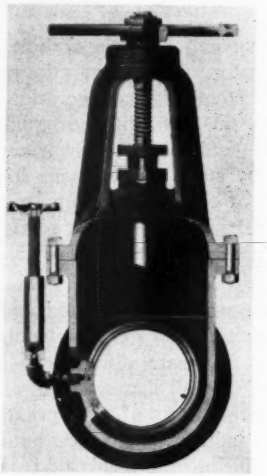
Provisions Made for Lubricating Valve

A valve has been placed on the market recently, the outstanding characteristic of which is the provision made for lubricating the seating surfaces. As indicated by the accompanying illustration, two lubricating guns, mounted on the side of the valve, are designed to force lubricant through grooves in the seating surfaces. The lubricant is supplied in the form of cartridges. It is claimed that with this method of using a lubricant, the

Readers will find in this department news of our industry's progress in the manufacture of equipment. You can read of the efforts of manufacturers to develop products which will increase customer demand, will make shop methods more efficient and will simplify installation.

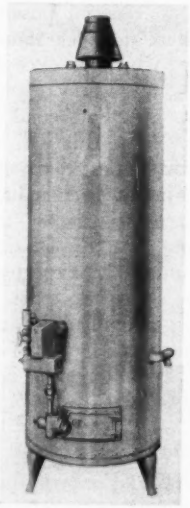
A letter to the editor of "Domestic Engineering" will bring you the name and address of the manufacturer of any product in which you are interested.

operation of the valve is facilitated and the valve gates remain tight even though the seating surfaces may become scratched or injured.



Water Heater Uses Aluminum Foil Insulation

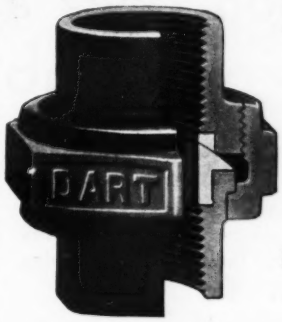
Using the principle that shiny surfaces reflect radiant heat, bright aluminum foil has been applied as insulation for a water heater recently improved and placed on the market. The material is crumpled so as to provide air



spaces for preventing the loss of heat by conduction. Another feature of this heater is the liner for the copper tank. It is made of asbestos fiber and portland cement.

A Grease Insoluble in Gasoline

A grease has been developed to serve as a lubricant for valves handling gasoline or other petroleum products. Also, it is for use on pipe joints in fuel oil installations. The claim is that the item is insoluble in either water or any petroleum product.



Ask the man who uses them

He'll tell you how Dart Unions save time, and while saving time, save money. He'll tell you how, year after year, they are the same fine quality—how the clean cut, sharp threads cause them to go on first try—and he'll tell you he's going to stand by them because they help him maintain his good reputation.

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The Fairbanks Co., Sales Agents
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Eliminate those unexpected "shots" of hot and cold water in shower baths. Stop the time wasted in trying to get water at the right temperature. Install Powers Mixers. Write for 20-page book.

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Offices in 37 Cities

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TABER SUMP PUMPS IN GENERAL USE

Built for 5 ft. pit. Single and Duplex Units

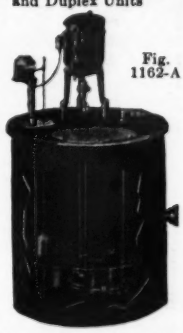


Fig. 1162-A

Sold with and without tank

The larger Taber Sump and Sewage Pumps are being specified and used on jobs requiring high grade equipment. Following are single unit sizes in general use. . . . 1750 R.P.M. 60 Cycle and Direct Current.

Type	G.P.M.	Head	Outlet,in.	Plate in.	H.P.	Wgt. lbs.
AL-25-2	25	20	1	24	½	272
AL-50-2	50	20	1¼	32	¾	350
AL-75-2	75	20	1½	36	1	436
AL-100-2	100	20	2	36	1½	481
AL-150-3	150	20	2½	36	2	607
AL-200-3	200	30	3	36	3	675
AL-300-3	300	30	4	36	5	772

Write for complete Bulletin SS-629

TABER
TABER PUMP CO. *Est. 1859*
Taber Pump Co., 290 Elm St., Buffalo, N.Y.

E-Z Radiator Hangers

USE THE hangers that MAKE GOOD Everywhere. Leading architects and contractors recommend and use them. Fully adjustable both horizontally and vertically. A complete line—Styles "R," "H," and "C" for all types of hung radiators and all conditions. Write for complete information.

HEALY-RUFF CO.
770 Hampden Ave., St. Paul, Minn., U.S.A.
Use E-Z Lavatory Hangers

Style "C"

Also Manufacturers of E-Z INSERT

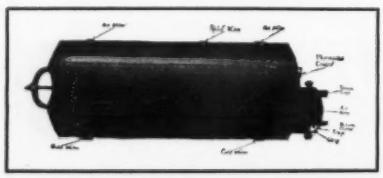
The Morrison does a thorough job

Where the demand for hot water is continuous and where no chances with inferior equipment can be taken, install the Morrison Instantaneous Service Heater.

It will do a thorough job for apartments, hospitals, hotels, etc.

Write for full information on construction, operation, installation and cost.

MORRISON BROS.
24th and Elm Sts. Dubuque, Iowa



The Morrison's removable coil is just one of the features that you'll be interested in. Write for full details today.

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Every effort is continually expended that Trenton Brass Products will serve you profitably and with complete customer satisfaction, that you too, may add to your record of satisfactory service.

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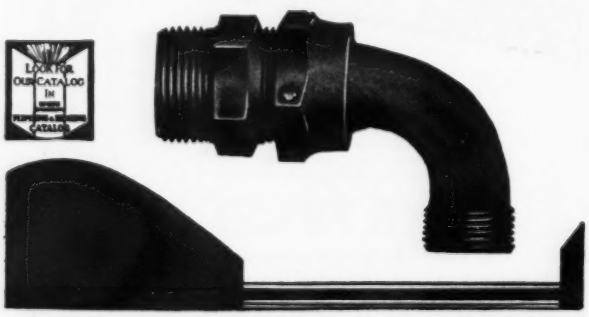

What Home Cooling Means Now to the Domestic Engineer

(Continued from page 35)

machine is the conventional type, and its source of power is the electric motor. This brings the makers of industrial and small commercial refrigerating machinery into the picture, with this specialized distributor, with an inclination to the habits of the electric power business, which now enjoy such an enormous load in refrigeration. Progress of this type of equipment is to the advantage of the refrigerator store or refrigerating machinery contractor along with the electrician and the public utility.

The absorption machine motivated with gas, has great theoretical advantages, not the least being its combination with gas heating, but many difficulties. If it is to be the eventual system, as well it may be, it will bring grist to the mill of manufacturers of absorption machinery, and that of the gas industry. Its distribution and installation may well fall into the hands of those now handling gas equipment, leaving the electrician, the refrigerator dealer or established refrigerating machine contractor out of the picture.

Finally we have the third basic system, the use of cold water, obtained by circulating water over ice. This system lays exceedingly good claims to the domestic air conditioning job—including of course the small commercial installation—store, restaurant, etc. The use of ice in these places, as well as on passenger cars, this past season points to especial possibilities for it next summer. This system involves somebody to manufacture the machinery, which is exceedingly simple, and several refrigerating machinery companies will have it to offer this season. In the second place, it involves a distributor-installer. Who this will be is open to question, but the domestic heating contractor has good claims to a share of it. Finally, it introduces—instead of the electric power or the gas business—the ice business. It is interesting to note that this fits in with the ice load factor better than might be expected offhand, for idle storage capacity has come into existence recently. This winter will see much of it filled, in anticipation of an air cooling load next summer. Some of the newer forms in which ice is made have interesting possibilities.

The domestic heating contractor should by all means keep his ear to the ground. He should demand the cooperation of the three kinds of designing engineers involved in the picture, and any of the three basic industries which have claims to supplying the energy. He should not, however, expect pioneers of the primary equipment to do the impossible, and for that reason he will no doubt find considerable interest in following developments in refrigerating machinery. There is probably no field of technique so active now as this one—or, on the other hand, one that represents so many inherent difficulties in meeting the exacting demands that are to be placed on equipment to perform air cooling in the modern home.

Since your editor then has thus expressed a desire to call your attention to this relation of refrigeration to your now chiefly heating background, I am glad to agree with him that there is a very essential relation involved

and one of great interest to you. Inasmuch as this general subject is to be prominent in the discussions of the simultaneous meetings in Cleveland of the American Society of Heating and Ventilating Engineers and our organization, I would like to invite those interested to use the technical sessions to their advantage, especially those which treat the domestic problems.

Speaking for any and all methods of accomplishing the cooling process, I would be expected to say that it is not as easy as its reverse process, heating. I do say so. What progress refrigeration has made has been snatched from a very reluctant nature which bathes us in a sea of heat and which abhors a cold spot as much as it abhors a vacuum. The minimum which must be known about a commercial refrigerating machine is that it *never combines the supreme safety, automatic operation and low cost.* Its essential hazards account alone for the conservative attitude of the refrigerating engineer, a situation which we have endeavored to meet with our standard safety code.

I maintain that refrigerating installation requires the very best engineering brains it can have. (I do not maintain, however, that it has always enjoyed them in the past.) With this note of warning, my remarks would amount to saying "domestic air conditioning is anybody's game." With them my message correctly reads "domestic air conditioning is anybody's game, if he understands the fundamentals, watches the way the straws point, and proceeds with a reasonable degree of caution."

Committees for A. S. H. V. E. Convention

Following are the committees that are in charge of the convention arrangements:

T. A. Weager, *General Chairman*

Finance: Walter Klie, chairman; W. E. Stark and H. M. Nobis.

Banquet: W. C. Kammerer, chairman; C. W. St. Clair and Vincent Eaton.

Reception and Registration: C. F. Eveleth, chairman; F. A. Kitchen and C. Gottwald.

Transportation and Inspection Trips: F. H. Morris, chairman; C. J. Deex and J. E. Beyer.

Entertainment: R. G. Davis, chairman; E. H. Pogalies and S. H. Givelber.

Publicity Committee: M. F. Rather, chairman; Akron District; D. E. Humphrey and *A. S. R. E.*—D. F. Keith.

Bridge Hostesses: Mrs. Walter Klie, Mrs. T. A. Weager, Mrs. H. B. Matzen, Mrs. D. F. Keith, Mrs. C. F. Eveleth and Mrs. C. W. Colby.

◆

Western N. Y. Chapter Gives Christmas Party

On December 14, the Western New York Chapter, A. S. H. & V. E. held its annual Christmas stag party at the University club in Buffalo.

At a short business meeting presided over by President Joseph Davis, the following slate of officers were announced for the coming year: President, Myron C. Beman; first vice president, D. J. Mahoney; second vice president, J. J. Yager; treasurer, W. F. Johnson; secretary, J. J. Landers.

SIMPLICITY OF CONSTRUCTION

ONE reason why

KIELEY & MUELLER DUPLEX WATER FEEDER

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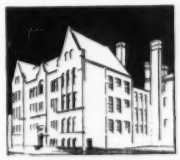

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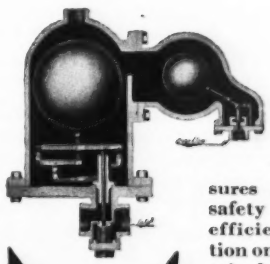
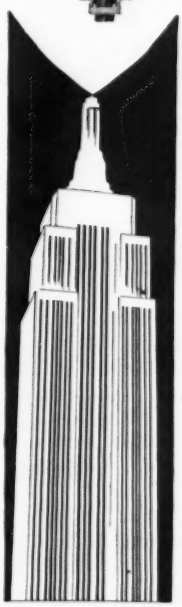
K & M Specialties Installed in Public School No. 84, Brooklyn in 1906





TIME, the great tester, has placed its stamp of approval upon the simplified construction of K & M Engineering Specialties. K & M Automatic Water Feeders, for instance. Installations of ten, twenty, and thirty years ago still delivering unfailing performance! Not in *one* building, but in hundreds! Not in *one* city, but all over the country!

K & M Duplex Water Feeder, the most recent feeder achievement of this fifty-two year old organization, insures maximum safety and most efficient operation on any boiler—in large building or small home. Note the simplicity of its direct flow, high capacity feed, removable valve seat and disc, and you will understand its super-efficiency. Consider its low-cost, quality construction and you will see why it has won such wide-spread acceptance. Descriptive literature mailed upon request. Address Kieley & Mueller, Inc., 34 West 13th Street, New York, N. Y.

◆

Shreve, Lamb & Harmon *Architects*
Meyer, Strong & Jones *Cons. Engrs.*
Starett Bros. & Eken, Inc. *Gen. Contr.*
Baker, Smith & Co. *Heating Contr.*

K & M Specialties in the EMPIRE STATE BUILDING

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ENGINEERING SPECIALTIES

Large Construction Projects

Even though new construction is at a low ebb compared with recent peak years, the fact remains that new projects are being started every day. Listed below are just a few of the larger building operations, either contemplated or only recently started.

Portland, Me.—Architects Pulsifer & Eye, 163 Main street, Lewiston, have prepared plans for a $250,000 apartment house to be erected at 142 State street for William Penn Whitehouse. Arrangements have been made for 52 two and three room suites.

New Britain, Conn.—The Mayor's Special Committee has reported recommendations for the authorized expenditure of $1,000,000 for a sewage disposal system.

Polk, Pa.—The H. E. Ash Company, Grove City, Pa., has been awarded the heating contract in connection with a new building at the Polk State School. The plumbing contract for the building has been awarded to Frank R. Andrews and Son, New Castle, Pa.

Minneapolis, Minn.—Plans are being prepared for a four-story nurses' home and hospital addition at the Minneapolis General Hospital, to cost $500,000. Croft & Boerner, Inc., 1004 Marquette avenue, are the architects.

Spokane, Wash.—The Jas. Smythe Plumbing & Heating Co. has been awarded the plumbing and heating contracts on the Pasco, Wash., post office building by the Hedeen Construction Co. of Seattle, holders of the general contract.

Seattle, Wash.—Preliminary plans for the projected $325,000 Law School building at the University of Washington have been presented to representatives of the board of regents by Architect A. H. Albertson. Construction is expected to start early in 1932.

Greenwich, Conn.—The Greenwich Hospital Association has engaged William B. Tubby, 475 Fifth street, New York City, to prepare plans for a municipal hospital and alms house on Parsonage road, to cost $300,000.

Burlington, Vt.—Plans are being prepared by James O'Connor, New York, and associate architect Frank Lyman Austin, 240 College street, for a new Y. M. C. A. Bids are anticipated in May for a 3-story unit, including a swimming pool, to cost $250,000.

Stamford, Conn.—Fletcher-Thompson, Inc., 1336 Fairfield avenue, Bridgeport, is preparing plans for a new unit at Stamford Hall Sanatorium, Bedford road, to cost $150,000. It is expected work will get started in the spring.

Sioux Falls, S. D.—Plans are being prepared for a one-story addition to the city coliseum building, to cost $100,000. Hugill & Blatherwick, 367 Boyce-Greeley building, are the architects.

Northfield, Minn.—Plans are under way for a new two-story post office building here to cost about $150,000. Rand Laboratories, Inc., 2500 Rand Tower, Minneapolis, are the architects.

Rochester, N. Y.—John M. Pike & Sons, Inc., has the $298,125 general contract on the new dormitory building for the Monroe County home here.

New York, N. Y.—The department of hospitals will build an $870,000 children's hospital on Welfare Island. Landsman & Smith are the architects. The department has also filed plans, through Architects Sloan & Robertson, for a $1,250,000 addition to Harlem hospital.

Anaconda, Mont.—Bids will be received by the U. S. Post Office Dept., Washington, D. C., for the construction of a federal building at Third and Main streets, to cost $150,000.

Macomb, Ill.—Bids will soon be taken by the board of education for the construction of two grade schools and a junior high school here to be built at a combined cost of about $150,000. Cervin & Stuhr, Safety building, Rock Island, are the architects.

Iron Mountain, Mich.—Plans are being prepared and bids will soon be taken for the construction of a new post office building here to cost $200,000.

Port Edwards, Wis.—A new high school will be built here at a cost of $150,000. Childs & Smith, 720 North Michigan avenue, Chicago, Ill., are the architects.

Sheboygan, Wis.—Plans have been approved and bids will soon be taken for the construction of a new two-story post office building at Center and Ninth street north, to cost $300,000. E. A. Stubenrauch, Sheboygan, is the architect.

Lincoln, Neb.—George Ralles, 1731 L street, is having plans made for an apartment house to be built at the corner of 17th and L street at a cost of $100,000. Wm. R. Morton, 1606 North 22nd street, is the architect.

Brooklyn, N. Y.—The Millberg Construction Co., 26 Court street, will build a six-story apartment to house 54 families. The cost is estimated at $200,000. Cohn Bros. are the architects.

Detroit, Mich.—Contractors' estimates on the new $1,000,000 post office must be in the hands of the government by March 23, according to the Canadian department of public works.

Brooklyn, N. Y.—The department of hospitals has filed plans for a five-story addition to the new structures for Kings County hospital, to cost $100,000. J. E. Kleist Associates, Inc., are the architects.

St. Louis, Mo.—Bids were recently taken for a terminal building at Lambert-St. Louis Municipal airport. Construction cost is estimated at $150,000.

Southampton, N. J.—A grade school will be erected in Union School District No. 6 at an approximate cost of $410,000.

Campbellsport, Wis.—St. Joseph Sisterhood plans a building addition to cost $300,000. Peter Brust, Milwaukee, is the architect.

Milwaukee, Wis.—Contracts are to be let at the school board's meeting in February for erection of the new four-story Rufus King high school. It will cost about $1,250,000.

Kansas City, Mo.—During 1932 the board of education will expend a million dollars in construction. Approximately $400,000 will be disbursed in enlarging the East high school, this work already having been started. The other principal construction item is erection at a cost of approximately $600,000 of a new Lincoln high school.

Columbus, Ohio—Orrin C. Belt will erect a two-story office building at East Broad and Ninth streets. Robert R. Reeves, 203 East Broad street, is the architect.

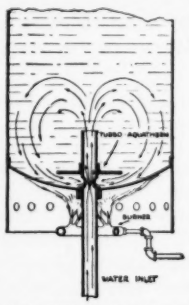
Colorado Springs, Colo.—Platt Rogers, Inc., Pueblo, has the general contract for construction of the $250,000 Coburn library at Colorado college.

Longview, Tex.—A six-story office building will be started here soon, to cost about $165,000. Wyatt C. Hedrick, Fort Worth, is the architect.

Something New!

DAHLQUIST TURBO

U. S. Patent No. 1762215



Every heating and plumbing engineer will welcome this device which takes advantage of the velocity of the incoming cold water in the hot water storage system to create a suction and a whirl which constantly sweep and scour the bottom of the boiler carrying every particle of foreign matter out of the system allowing no sediment (mud) to accumulate.

PLAIN FACTS

Hot water storage tanks of all kinds are actually sediment traps and eventually deliver muddy hot water unfit for any use. Once sediment has accumulated, there is constant trouble with muddy water.

With a Dahlquist Turbo-Aquatherm installed in your hot water tank, sediment cannot accumulate—it keeps all foreign matter on the move assuring the user fresh clean hot water fit for cooking and drinking purposes at all times—those in the trade who know about the Dahlquist Turbo-Aquatherm will not install a hot water storage system without it.

Dahlquist Turbo can be installed in any boiler now in use

There is a Dahlquist Copper Boiler for every purpose—architects and plumbing engineers may be assured that their requirements for copper boilers of any size or kind can be supplied by us. Get our quotations on your requirements.

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Boiler Tube Cleaners, Flue Brushes, Wire Heater Brushes, Handy Cleaner Brushes, Fire Brooms, Track Brooms.

Tempered Steel

MADE FOR LONG RUGGED SERVICE

The Worcester line is complete. Catalog gladly sent upon request.

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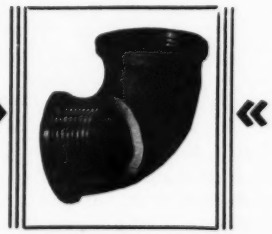
PIPE FITTINGS



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ILLINOIS MALLEABLE IRON CO.

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MANUFACTURERS OF BRASS AND IRON VALVES

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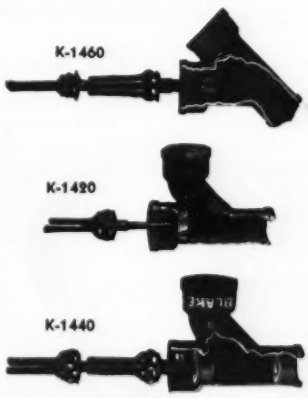
SAVE TIME *with* BLAKE *patented* Lightning Test Plugs



This greatly improved test plug is easily inserted and adjusted. All inconveniences eliminated. Do not confuse with ordinary test plugs. Thousands in use with a continuous demand for more. All sizes from 2 to 6 inches. Order by number, stating size required. Sold by jobbers everywhere.

"MAKE NO MISTAKE—USE THE TESTED BLAKE"

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RAVENA
IRON PIPE FITTINGS
1903-1932
OVER A QUARTER CENTURY OF SERVICE
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"EBCO"
Dishwashing
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with built-in dishpan

Let us tell you how to turn idle hours into extra profits. Send for copy of "A New Selling Slant". It does not obligate you in any way.

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IMPROVED "WILHELMI"
All Copper BOILERS

YOU get the extra profit . . . your customer gets the extra service . . . when you sell him an Improved "Wilhelmi" all-copper Boiler.

These boilers are hydraulically tested before leaving our factory to 200, 250 or 300 pounds and recommended to a working pressure of 42½% of the test pressure.

Get out and sell the "Wilhelmi". Make business, and each installation will help sell another.

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DRAINAGE
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AND STEAM
FITTINGS

SEMLER COMPANY
JEANNETTE-PA.
SURE FIT FITTINGS

New Trade Literature

Catalog of Steam Line Equipment

The American District Steam Co. of North Tonawanda, N. Y., has just issued its 1932 catalog, covering its line of slip type and packless expansion joints, underground steam conduit, insulation and accessories, condensation and steam flow meters, water heaters, steam traps, separators, strainers, alignment guides, and allied specialties for underground steam and hot water lines. This catalog will no doubt prove a valuable addition to any heating engineering library.

Bulletin on Complete Water Systems for Farm Homes

Decatur Pump Company of Decatur, Ill., has issued its bulletin No. 94-C, featuring its super-turbine pumps, water systems, and condensation return units. This company's super-turbine pumps are designed to meet every requirement where an adequate water supply is desired. Various sizes and capacities are available for practically every type of installation. The bulletin is printed in three colors, red, green and black and well illustrated.

Stack Safety and Ignition Control Bulletin

Penn Electric Switch Co. of Des Moines, Iowa, has issued a 4-page bulletin, 8¼ x 10½ in., illustrating and describing in detail the construction and operation of its stack safety and ignition control for oil burners. This control has been approved by the Underwriters Laboratories, Inc., and it may be used for burners employing intermittent ignition of the electric spark or expanding gas flame types or a combination gas and electric ignition, and also for continuous ignition.

Catalog of Welding Equipment

The Bastian-Blessing Co. of Chicago, Ill., has issued its catalog No. 57 containing illustrations and descriptions of its line of welding and cutting equipment such as acetylene generators, carbon burning outfits, cutting outfits, lead burning and welding outfits, compressed air regulators, single stage and double stage regulators, carbon burning torches, cutting torches and attachments, and accessories. The catalog, which consists of 48 pages, 3½ x 6 inches, also contains much valuable information about welding. The chapters on "How to Make Up a Special Outfit," "How to Choose a Torch," and "Regulators Make the Outfit," will no doubt prove of special interest to anyone who has anything to do with gas welding or cutting. A carefully compiled index makes this catalog very handy for quick reference.

Bulletin of Portable Power Pipe Threader

Axelson Manufacturing Co. of Los Angeles, Calif., has published a bulletin describing and illustrating its portable pipe threader, which threads ½ to 2-in. pipe and can be operated on light switch current. The operation of this threader is described as being very simple. A standard square die is revolved on the pipe. This principle insures a straight thread, and it also enables the

William P. Dwyer, Utica, plumbing inspector; Mrs. and Mr. George L. Green, of LeRoy. Photos taken at the annual convention of the New York State Association of Master Plumbers, held recently at Utica

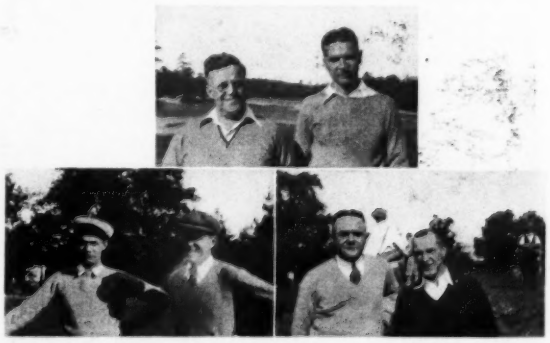
Left to right: W. J. Busser, Jr., of J. F. Reber & Co., Lewisburg, Pa.; C. F. Courtney and C. G. High, both of Reading Iron Co., Reading, Pa. Photos taken at the annual convention of the Pennsylvania State Association of Master Plumbers, held recently at Allentown

user to run thread on bent and long pipe stands. The material to be threaded is held in place by two self-centering jaw chucks which assure accurate alignment and rapid operation. The following attachments are furnished with this threader: A pipe cutter, a reamer, and six standard square dies in the following pipe sizes: ½ in., ¾ in., 1 in., 1¾ in., 1½ in. and 2 in. The jaws of the machine can also be used as a pipe vise, it is pointed out in the bulletin.

Calendars for 1932

The calendar of Warren Webster & Co. of Camden, N. J., has been received. This year it consists of a sheet, 12½ x 18½ in., for each month. The January sheet also contains calendars for the preceding month as well as the following month, and this system is followed throughout the entire year, making it a very convenient reference calendar. Each sheet brings halftone illustrations of one, two, three or four large buildings in which the company's systems of steam heating have been installed, among them office buildings, department buildings, court buildings, residences, hospitals, churches, hotels, club buildings, university buildings, etc.

A. M. Byers Co. of Pittsburgh, Pa., has issued a very practical calendar, 11½ x 27 in., printed in three colors, black, silver and red. This calendar consists of twelve sheets, one for each month, and each sheet contains calendars for three months, the current, the preceding and the following month. The figures are all in large, heavy type, making it possible to see the dates at a distance; it is therefore an ideal wall calendar. This calendar has no illustration, but each sheet brings in neat type a list of some of the products of this concern such as wrought iron pipe, billets, tubing, nipples, casing, special bending pipe, etc.



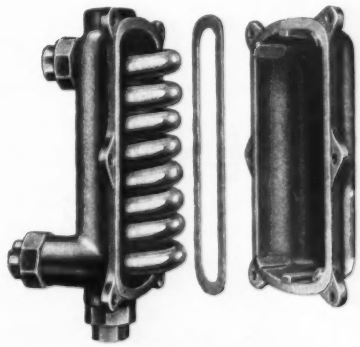
Top picture, left to right: George Duncan, Freehold, N. J., and A. A. Scharnagl, Camden, N. J., both of J. D. Johnson Co. Bottom row: M. S. Little, Hartford, Conn.; J. W. Worthington, Philadelphia, Pa.; Harold Maddock, Trenton, N. J., and James A. Russell, guest. Photos taken at tournament of the Delaware Valley Trade Golf Association, held recently at Pine Valley Golf Club

SURE HOT WATER HEATERS

No. 30 U and No. 1 U

Hot water costs your customers practically nothing with a "Sure-Hot." Furthermore, the installation of a "Sure-Hot" assures lasting satisfaction to your customers. That's why "Sure-Hot" business is good with plumbers and heating contractors.

"Sure-Hot" water heaters are made in fourteen sizes from 30 to 650 gallons. All with the famous "Sure-Hot" features of construction and dependability and efficiency back of them. Not a cheap line, but made up to a standard long recognized by the trade.



No. 30 U and No. 1 U

Notice the sturdy copper coil which produces an abundance of clear fresh hot water, and the rugged construction of the shell, assuring long life of the heater.

Send for folder 56-1 showing NEW designs, capacities, etc.

Tested and Approved 1934 Good Housekeeping Institute Good Housekeeping Magazine

Manufacturers of Tubular and Cast Brass Lavatory and Sink Traps, Supply Pipes, Connected Wastes and Overflows for bath tubs, Tank Fittings, Floor and Ceiling Plates and the Patented "Duo" Sanitary Sink and Tray Wastes.

THE M. S. LITTLE MFG. CO.
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YOU can do a real soldering job with Yager's Soldering Salts because Yager's has been developed for lead work.

With Yager's, solder flows faster—the minimum of time is spent on each job.

See our catalog in Domestic Engineering Plumbing & Heating Catalog, and write for a sample can if you have never used it.

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For list of distributors see McRae Blue Book for 1932

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Enameled Iron Water Closets, Hoppers, Traps, Tanks and Plumbers' Specialties

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BALTIMORE MARYLAND

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ACHESON BRASS FITTINGS

The Best Brass Fittings that Experience, Modern Machinery, Rigid Inspections and Conscientious Effort Can Produce
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Now! only $66

Cash, F. O. B. Factory
For 210-gallon-per-hour size
Complete with motor for 60-cycle or direct current

Profit by this outstanding value in Home Water Systems

AT $66, this complete 210-gallon-per-hour Fairbanks-Morse Home Water System is unmistakably the greatest value ever offered.

It is automatic with all working parts enclosed in a handsome lacquered casing. This tremendous value, made possible by Fairbanks-Morse quantity production and world-wide distribution, will mean extra profits for the dealers that handle them.

Write now for complete information before someone else in your territory gets the franchise. Address Dept. I-1.

FAIRBANKS, MORSE & CO., 900 S. Wabash Ave., Chicago

FAIRBANKS - MORSE Home Water Systems

Business Changes

Bristol, Conn.—Grennan & LaFrance, 65 Wooding street, have established their plumbing business in new quarters at 189 Divinity street. The building at the new location has been remodeled for showroom, office and shop facilities.

San Francisco, Calif.—James O. Dugan has moved his plumbing and heating business from 104 Excelsior street to 236 Paris street.

Denver, Colo.—C. H. Vogel has moved his plumbing and heating shop from 3516 to 3600 East Colfax avenue, which is a corner location.

Denver, Colo.—The Kai Villien Plumbing & Heating Co. has started plans for an enlarged business program, including the moving to larger quarters at 1951 Champa street. The showroom will be of modernistic design with many lights, all shining downward towards the fixture displays. Mr. Villien plans to experiment with different color lights.

New Contractors and Incorporations

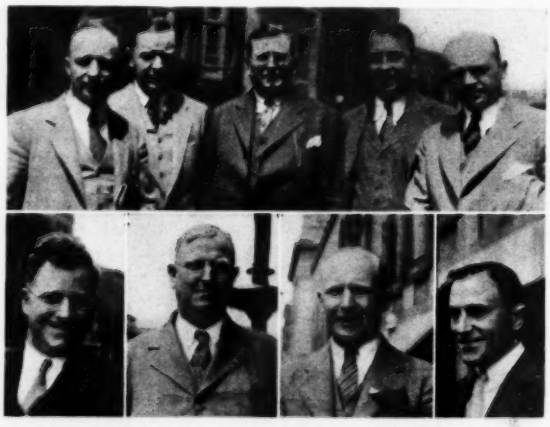
Royal Oak, Mich.—The Bert Edge Plumbing & Heating Co., 808 North Washington avenue, has been incorporated with a capital stock of $10,000, of which $5,000 has been subscribed and paid in.

Portland, Ore.—The Perfection Heating Equipment Co. has been formed at 725½ East 22nd street, N., by S. M. Langham and L. J. Long.

Kansas City, Mo.—The John G. Lewis Plumbing & Heating Co. has been incorporated by John G. Lewis, 412 East 31st street, and others.

Portland, Ore.—The Eclipse Heating Co. has engaged in business at 690 East 79th street N., under the management of Frank Ayres.

New Brunswick, N. J.—The A. Hess Plumbing Company, Inc., has been chartered, with a capital of $50,000,



Top row, left to right: S. P. Flory and Frank L. Wilson, both of Standard Sanitary Mfg. Co., Philadelphia; E. P. Sneger, Allentown; C. J. Snodgrass and John Betzer, Jr., both of Standard Sanitary Mfg. Co., Philadelphia. Bottom row: H. C. Keehner, W. A. Case & Son Mfg. Co., Buffalo, N. Y.; Howard Hanna, Lehigh Valley Supply Co., Easton; F. C. Hall, Easton; and S. John Radice, manager Philadelphia branch, Trenton Potteries Co. Photos taken at the annual convention of the Pennsylvania State Association of Master Plumbers, held recently at Allentown

Top row, left to right: Merrill F. Blankin, Hoffman Specialty Co., Inc., Waterbury, Conn.; and Warren Webster, Jr., of Warren Webster & Co., Camden, N. J. Middle row: A. E. Franklin, Boston; Walter L. Fleisher, New York City; Coll Flint and Stanley Smith, both of H. B. Smith Co., Westfield, Mass. Bottom row: R. W. Cumming, Sarco Co., Inc., New York City; C. A. Sawade, National Radiator Corp., Johnstown, Pa.; H. W. Hachule and E. J. Richie, both of New York City. Photos taken at the semi-annual meeting of the American Society of Heating and Ventilating Engineers, held recently at Swampscott, Mass.

by Alexander Hess and associates, to establish and operate a plumbing engineering and contracting business. Herman N. Akestein, local attorney, represents the new firm.

New York City—With a capital of $5,000, the Bronx County Plumbing and Heating Corp. has been chartered, to establish and operate a plumbing and heating engineering and contracting business in the Bronx. The new concern is represented by S. H. Lifschitz, 1910 Arthur avenue, the Bronx.

Brooklyn, N. Y.—The firm of Launer and Fleiss, Inc., has been organized, with a capital of $10,000, to establish and operate a plumbing engineering and contracting business. P. H. Weiss, 16 Court street, represents the firm.

Troy, N. Y.—The W. and B. Heating and Equipment Company has been organized and incorporated, with a capital of $15,000, to establish and operate a heating engineering and contracting business. J. E. Spain, local attorney, represents the new concern.

Buffalo, N. Y.—The firm of Brown and Company has been organized, to establish and operate a heating engineering and contracting business. Principals of the new concern are Richard F. Gritzke, 176 Hazelwood avenue, and Percy Ward Brown, 624 West Delevan avenue.

Ida Grove, Ia.—The A. & B. Service is the name of a new plumbing business here. The proprietors are C. P. Abrams and A. J. Benedict.

Spokane, Wash.—The Warren Latham Company, Inc., has been chartered, with a capital of $25,000, to engage in the plumbing and heating business, by Warren Latham, C. B. Latham and Wm. Barr.

$3,000 RING *found in bath tub*

THIS departing guest was frantic: A $3,000 diamond ring lost—and he couldn't wait to look for it. With agony in his voice, he called the United Manager. Three hours go by. The guest has gone, but the manager is still on the job.

A wild idea—the Manager pokes a flash-light down the bath tub drain—there's a faint sparkle—plumbers arrive, the drain gives up a $3,000 ring.

Another true story proving that United Managers do the impossible in finding lost articles. This extra service costs the hotel money? Yes, but what of it. Extra service is taken for granted at United Hotels, just like larger rooms per dollar—and handy garage accommodations.

Extra service at these 25

UNITED HOTELS

NEW YORK CITY'S *only United* . . . . The Roosevelt
PHILADELPHIA, PA. . . . . The Benjamin Franklin
SEATTLE, WASH. . . . . The Olympic
WORCESTER, MASS. . . . . The Bancroft
NEWARK, N. J. . . . . The Robert Treat
PATERSON, N. J. . . . . The Alexander Hamilton
TRENTON, N. J. . . . . The Stacy-Trent
HARRISBURG, PA. . . . . The Penn-Harris
ALBANY, N. Y. . . . . The Ten Eyck
SYRACUSE, N. Y. . . . . The Onondaga
ROCHESTER, N. Y. . . . . The Seneca
NIAGARA FALLS, N. Y. . . . . The Niagara
ERIE, PA. . . . . The Lawrence
AKRON, OHIO . . . . . The Portage
FLINT, MICH. . . . . The Durant
KANSAS CITY, MO. . . . . The President
TUCSON, ARIZ. . . . . El Conquistador
SAN FRANCISCO, CAL. . . . . The St. Francis
SHREVEPORT, LA. . . . . The Washington-Youree
NEW ORLEANS, LA. . . . . The Roosevelt
NEW ORLEANS, LA. . . . . The Bienville
TORONTO, ONT. . . . . The King Edward
NIAGARA FALLS, ONT. . . . . The Clifton
WINDSOR, ONT. . . . . The Prince Edward
KINGSTON, JAMAICA, B.W.I. . The Constant Spring

UNITED HOTELS

What Women Are Doing

It's a Great Life If Your Endurance Is Good!

Another complete short story, from the interesting biography of the wife of one of the men in the trade who, as you will find, is doing much to promote her husband's business. This interesting story tells how this clever business woman helps in her husband's office

WE SUFFERED a severe attack of "growing pains" after three years spent in our tiny quarters at our first location, and they were brought on not so much by ambition for bigger and better quarters but by actual need for more adequate space. The showroom ran over into the office, and the office ran over into the shop, and with office, showroom and shop rubbing elbows so closely, and business growing fast, it had become difficult to function smoothly.

For the rent that our budget allowed, it was no easy matter to find a new place that was large enough to meet our requirements and yet located in the central business district, as we had determined that it must be. I wore out much shoe leather in the hunt and when I finally found not what we wanted but what I thought would answer the purpose, I had to do a lot of "tall talking" to sell the idea to others of the organization. It did indeed take a vivid imagination to picture it as desirable quarters for our type of business. It consisted of a 20x50-ft. showroom and balcony in a garage building fronting on a main street and had formerly been occupied by a tire store. The showroom solved our display problem, the balcony took care of the office, but what to do with the shop? That problem was finally solved by renting an additional space in the garage itself for shop and storage.

This arrangement, while not the most convenient to be desired, had its advantages. To be on a busy thoroughfare meant so much, and the showroom had a tile floor! Personally, I think I would have rented it for that reason alone, for I was pretty well worn out with the splintery proposition, unsightly to look at and hard to keep clean, that we had had to contend with at the other place.

What fun I had fixing the new place up! Next to the tile floor I think the plate glass windows brought me the most joy. How they sparkled after the "just window glass" I had been used to, and to how much better advantage the display equipment appeared against its new and more pleasing background. Home was robbed of wicker furniture in order that the showroom might look the more inviting. Shaded lamps were placed about and ferns here and there for atmosphere.

It was a complete departure from showrooms as showrooms went with other members of the trade in our city. The most of them made not even a pretense of having a showroom and ridiculed our venture as a fit setting for "pink teas" but not for business.

(To be continued)

Milwaukee Auxiliary Installs New Officers

The Ladies' Auxiliary to the Milwaukee Master Plumbers' Association held its first meeting of the New Year at the Elks' club on Monday, January 4, at which time the following new officers were installed:

Mesdames Fred Westfahl, president; Walter Dusold, first vice president; A. A. Hoffman, second vice president; Robert Stemper, third vice president; Peter Vogt, recording secretary; Charles Blackford, corresponding secretary; L. R. Schmaus, treasurer; and Rose R. Friend, chaplain.

Denver Auxiliary Holds Successful Christmas Party

On the evening of December 19 the Ladies Auxiliary to the Denver, Colo., Master Plumbers Association held its annual Christmas party. The committee responsible for the delicious dinner which preceded the party consisted of Mrs. V. A. Kiser, president; Mrs. G. A. Stocking, chairman; Mrs. F. H. Henlin, Mrs. E. B. Clayton, Mrs. Robert Demmer, Mrs. Fred Samson, who were also helped by Mrs. J. P. Brickey, Mrs. Vincent Kandorf and Mrs. J. J. Laverty.

On a large Christmas tree were gifts for all who were present. The members of the auxiliary brought presents which were distributed as surprises.

After the distribution of the Christmas presents the

guests played cards. Vincent Kandorf and C. R. Cooper took honors among the men, while Mrs. Edwin B. Clayton and Mrs. Clarence Cooper occupied a similar position among the ladies.

Newton Auxiliary Supports Charitable Institutions

The Newton, Mass., Women's Auxiliary held a meeting at the home of Mrs. Leonard Hickman on December 9. The auxiliary at this time voted to donate $10 to the Post Santa Claus, $5 to the Salvation Army and $20 to local charity. The sum of $10 was given at Thanksgiving, making a total of $45 donated to charity by this group. After the meeting bridge was enjoyed and delightful refreshments were served.

Mrs. Collins Is New President of Indianapolis Auxiliary

Mrs. Herbert Bauer entertained the Indianapolis, Ind., Women's Auxiliary at her home on Friday, December 11. All members brought food, which was turned over to Robert Fox, secretary of the local union of journeyman plumbers, who distributed it to the needy members of the union.

An election of officers was held at which time Mrs. Tyra Collins was elected president; Mrs. Richard Bardy, vice president; Mrs. Joseph Lauber, secretary, and Mrs. John Anderson, treasurer.

The meeting then adjourned for a social hour. Luncheon was served later, at which time the Christmas gifts were exchanged in an amusing manner. Gifts were passed around the table to the ringing of an alarm clock, and when the alarm stopped ringing each retained the gifts they held at the time.

Mrs. Tyra Collins, 2015 Dexter, who is the newly elected president, will entertain the auxiliary at its January meeting.

Pasadena Auxiliary Gives Christmas Party for Orphan Boys

A Christmas party was held on December 17 by the Pasadena, Calif., Women's Auxiliary. There were seventy-five persons in attendance, including the members of the Merchant Plumbers Association. The party was held at Plumbers' Hall with Mr. and Mrs. W. H. Swihart, Mr. and Mrs. A. R. Benedict, Mr. and Mrs. A. C. Hanson and Mr. and Mrs. George Richardson in charge. The purpose of the gathering was to entertain the inmates of the orphan boys of Strickland home. The home is located about 15 miles from Pasadena, and the auxiliary members and their husbands brought the boys to Plumbers' Hall in automobiles. Five teachers in the home and the matron were also present. Santa Claus gave each child a stocking filled with candy, nuts, oranges, apples, etc. Ice cream, cake and coffee were served to the thirty-eight happy youngsters.

Mansfield Auxiliary Gives Food to Needy

Mrs. Herman Hoffman entertained the Mansfield, Ohio, Auxiliary at a delightful luncheon at her home on Scholl road, December 17. The ladies exchanged Christmas gifts. Three half-bushel baskets were filled with food and given to needy families. The members had been working on three comforters at previous meetings and these also were given to the poor. Mrs. C. W. Ricker will be hostess at the next meeting, which is scheduled for Thursday, January 28.

LEONARD
Water Mixing
VALVES

Thermostatic Control

Leonard Control is another way of saying, no matter what the requirement of the user, 80, 90, 100 or 120 degrees, that requirement will be met, and met positively. The temperature indicator is set, and the thermostatically controlled Leonard does the rest. Leonard Valves are also furnished with special temperature markings. Write us for information that will be of much interest to you.

Manufactured by
LEONARD-ROOKE COMPANY
Incorporated 1913
PROVIDENCE :: RHODE ISLAND

New!
A Flush Valve Closet for the PRIVATE HOME

If you could see INSIDE this Valve and INSIDE this bowl you'd know instantly why it

Operates on ½" or ¾" Supply Pipe
Instead of 1¼ or 1½ inch Branches

Operates on 12 or More Gals. per Minute
Instead of from 30 to 40 gals.

Uses Only 2½ Gallons of Water
Instead of from 4½ to 6 gals.

Is Practically Silent in Action

Not just another flush valve on a regular closet bowl, but a complete new combination consisting of a new type bowl with a new type valve, employing an entirely new alternating principle of flushing. Not a freak type of any kind. No cramped trap or restricted waterways.

Write for Full Details and Prices

THE MURDOCK MFG. & SUPPLY COMPANY
Cincinnati, Ohio
1853-1932

Patented and Patents Pending

The "Murdock" Alternater Closet

Bead Chain brings out the beauty of any fixture to which it is attached, because of its own beauty. It may be ordered in chrome finish or nickel silver to match fixtures. Sell Bead Chain for appearance—its quality is completely established. See that your men suggest it on every job.
THE BEAD CHAIN MFG. CO.
Bridgeport Connecticut
Bead Chain for Beauty

Ozite
Standard Hair Felt
Ozite
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Ozite
Check Freezing with
Ozite
PIPE COVERING
Wrap Ozite Pipe Covering around all cold water pipe and brine pipe lines. Prevent the costly damage of frozen pipes in winter—stop them sweating in warm weather. Made entirely of pure cattle hair — it is Nature's natural insulator. Easy to handle and apply. Write for sample.
AMERICAN HAIR & FELT COMPANY
Merchandise Mart • • Chicago

Pipe —— Lines
Connected by LYT

On his peregrinations, "Shorty" Lewis keeps his humorous eyes open. So he is able to send us this one:

HISTORY'S FAMOUS GOLFERS

David, who made a hole in one.
Sampson, who couldn't break away from the links.
Sapphira, Ananias' wife, who tried to improve her husband's lie.

Magellan, who went around in 1521.
Queen Elizabeth, who was always in the ruff.
Samuel Adams, who staged the Boston tea party.
Daniel Boone, who shot birdies in the American open.
Lars Porsena of Clusium, by the nine gods he swore.

WELL, JUST ONE SCOTCH IF YOU INSIST

Sandy, who owned a picture theater in Aberdeen, went to London to get some new ideas for advertising. While there he noticed a sign over a movie house which said: "All persons over 80 will be admitted free!"

"Just the thing!" he thought to himself.

After his return to Aberdeen he put this notice on his theater box office:

"All persons over 80 years of age admitted free—if accompanied by their parents."

WHY, INDEED?

The Smiths were on the balcony. They could hear what a young couple were saying in the garden below.

"I think he wants to propose," said Mrs. Smith. "We ought not listen. Whistle to him."

"Why should I whistle?" demanded Smith. "No one whistled to warn me."

We are reminded of a man who was asked what, next to a beautiful girl, he admired most. His reply was that next to a beautiful girl he wasn't bothering about statistics.

Scientific Note: A new kind of telephone has been invented that leaves both hands free while phoning. But what's the use? You can't get at the operator.

The dullest hour is just before the yawn.

HE MIGHT EVEN LEND A HELPING HAND

A fat woman elbowed her way through the crowd, jabbing first one person and then another. Finally she gave one man an unusually hard thump, and asked: "I say, does it make any difference which car I take to the West View Cemetery?"

"Not to me, Madam," was the courteous reply.

P. G. N., Chicago.

A LITTLE INSIDE INFO.

Co-ed: "Is anyone looking?"
Ditto: "No."
Co-ed: "Good. Then we don't have to smoke."

FLINTECHO

A cow is a very useful animal. It makes the same noise as the saxophone—and gives milk besides.

It isn't true that Edison invented the first talking machine. He invented the first one that could be shut off. L. Y. T.

Bath a Day Movement

177

Now comes an inquiry from a school where they are working on a little play about sanitation. They want a copy of "The Story of the Bath" to use in working up the play. This is just one example of the continued vitality of the appeal of the Bath a Day Movement to the school authorities

TWO main uses of "The Story of the Bath" and the ideas back of the Bath a Day Movement have developed. First, there is the distribution of the booklet to the schools for use in health classes. Second, there is the use of the booklet in connection with the Twenty-Minute Program for presentation at meetings of Kiwanis, Rotary, Lions and other clubs of the kind.

If you have not read "The Story of the Bath," ask for a complimentary copy. And if you are a member of a service club, ask for the program—it will come to you without charge and you will find it helpful. It was written because we had so many requests from contractors for just such help.

Little Sentences That Sell

Write one of these BLACKBOARD EPIGRAMS on your window or bulletin board each day. Many master plumbers and heating contractors find them real business getters.

Consistency is often another name for contrariness.

* * *

Fish that eat each other must enjoy much brain food.

* * *

A full moon is more attractive than a full man.

* * *

Fame at the cost of honor is dearly bought.

* * *

Adversity tries some men and police judges try others.

* * *

Your life isn't worth living unless you think it is.

* * *

Dogs that bark at night often bite the dust.

* * *

Want of tact is an incurable infirmity.

* * *

A man may know his own mind and still not be very wise.

* * *

Some men go to work and others wait for work to come to them.

* * *

Don't envy your neighbor's luck; envy his pluck, if anything.

American
LAVATORY SUPPLIES

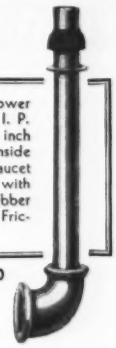
Whether for the smallest or the largest fixture in the installation, American skill and care go hand in hand in every instance.

Investigate the complete American line.

Order through your jobber.

Connection at lower end is 3/8 inch I. P. size. Tube is 1/4 inch O. D. to fit inside of Lavatory Faucet Shank and fitted with Cone Shaped Rubber Seat and Brass Friction Ring.

No. 590



AMERICAN SANITARY MFG. CO.
ABINGDON ◆ ILLINOIS

As you gain new business and the confidence of your customers by installing welded pipe systems, permanently leak-free, you will develop increasing confidence in Airco Oxygen if you give it a trial.

Its uniform quality and availability in any quantity should interest you if you are welding. If you are not, we shall be glad to explain how to gain customers, more business and even cut your overhead thru its use.

Air Reduction Sales Co.
Lincoln Bldg., E. 42nd St., New York City

ROBERTSHAW
THERMOSTATS

For authentic advice on your temperature control problems, write the Robertshaw Thermostat Company, Youngwood, Penna.

IT'S THE WORK ...NOT THE SALES TALK

THE WRENCH WITH THE ANGLE HANDLE

U. S. HAME COMPANY
BUFFALO, N. Y.

Try the new and improved USHCO Lawson Wrench! It out-performs any other wrench on the market. Its patented principle and the angle handle make it definitely a better wrench.

Our folder gives the details and specifications on these wrenches. It is Free. Write for it now.

HAYS ERICO HEAVY CHROMIUM PLATED DOUBLE SINK FAUCET

Fig. 179F
Write for Catalog
Sec. 1

HAYS MFG. CO., ERIE, PA.

GERSTEIN & COOPER
COPPER STORAGE TANKS

Copper for long life—Gerstein & Cooper's reputation for dependable service. This combination has meant much to many contractors during the strenuous times we have been passing through. They will mean much to you.

May we send our catalog?

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Gerstein & Cooper Co., 522 Park Avenue, Baltimore, Md.
G. Mason Price, Montreal, P. Q.
Troop Water Heater Co., Pittsburgh, Pa.

SIX POINTS *that help you sell the* DEMING "OIL-RITE" DEEP WELL PUMPS

1 Combined Splash and Pressure Lubrication
2 Helical Cut Gears
3 Sectional Construction
4 Exceptionally Large Bearing Areas
5 Four Sizes, 6", 10", 14" and 18"
6 Automatic Air Release

For complete details on this and other Deming Water Systems, write
THE DEMING COMPANY, Established 1880, SALEM, OHIO

INCREASE YOUR PROFITS

There's a good margin for you And satisfied customers too!

Sell Dole Air & Vacuum Valves

Write for full information.

THE DOLE VALVE COMPANY 1913 Carroll Ave., Chicago

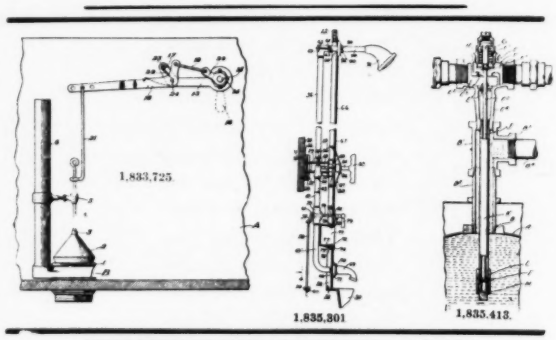
How it looks inside Dole 2-B Vacuum Valves

PATENTS

Plumbing Department

1,833,725. Flush Lever and Bulb. Ray R. Smith, Clarksburg, W. Va.

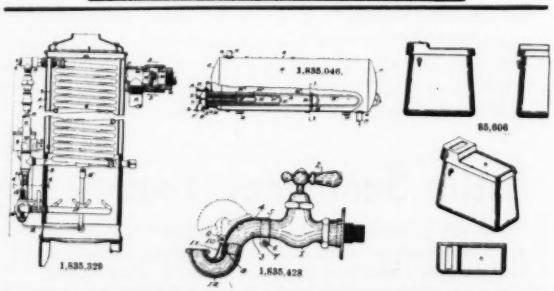
1,835,301. Plumbing Fixture Installation. Vincent D. Hennessey, Milwaukee, Wis.



1,835,413. Thermostatic Cut-off Valve. Luther D. Lovekin, Wynnewood, Pa., assignor to Kitson Company, Phfladelphia, Pa., a Corporation of West Virginia.

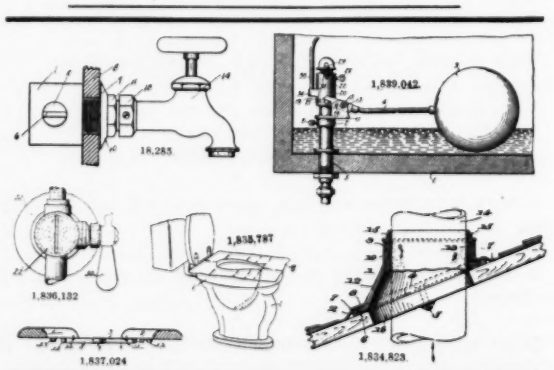
1,835,329. Water Heater. Leslie E. Peters, San Francisco, Calif.

1,835,046. Water Heating and Other Heat-Transfer Apparatus. John Hickey and Willis M. Wright, New Haven, Conn., assignors to The National Pipe Bending Company, New Haven, Conn., a Corporation.



85,606. The Ornamental Design for a Cover for a Water Closet Flush Tank. Bert O. Tilden, Trenton, N. J., assignor to B. O. T. Manufacturing Company, Trenton, N. J., a corporation of New Jersey.

1,835,428. Adjustable Fountain Attachment for Faucets. Louis C. Rathbun, Oelwein, Iowa.



18,285. Unitary Valve and Mixing Chamber. Frank R. Tomlinson, Bay City, Mich.

1,839,042. Ball-Cock Valve. James H. McPartland, Houlton, Me.

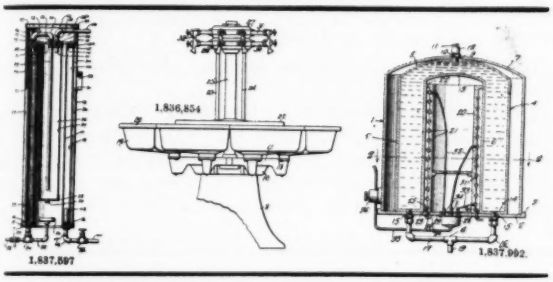
1,836,132. Water Faucet. Alfred Rosewood, San Francisco, Calif.

1,835,787. Sanitary Closet Seat Cover. Melvin H. Knisely, Albion, Mich., assignor of one-half to Glenn J. Walker, Marlette, Mich.

1,834,823. Flashing Ring. James Bropson, Cleveland, Ohio, assignor of one-half to James J. Bropson, Cleveland, Ohio.

1,837,024. Closet Seat. Frank C. Dillenback, Grand Rapids, Mich.

1,837,597. Water Heater. Robert B. Thomas, Napa, Calif.



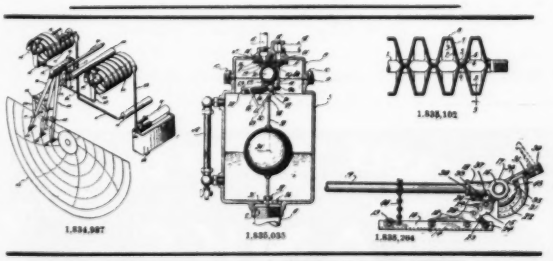
1,836,854. Lavatory Fixture. Roger M. Leland, Wellesley Hills, Mass.

1,837,992. Electric Water Heater. Pete Palumbo, Wierton, W. Va.

Heating Department

1,834,987. Automatic Control of Humidity of Air. Hoyte Hendrik Willem van Eyk, Deventer, and Johan Philip Pfeiffer, Delft, Netherlands, assignors, by mesne assignments, to The Brown Instrument Company, Philadelphia, Pa., a Corporation of Pennsylvania.

1,835,035. Return Trap. John Fraser, Jr., and Frank Hutchinson, Milwaukee, Wis., assignors to Milwaukee Valve Company, Milwaukee, Wis., a Corporation of Wisconsin.



1,835,102. Radiator. Domingo Anthony Usina, Nutley, N. J., assignor to Murray Radiator Corporation, Brooklyn, N. Y., a Corporation of New York.

1,835,264. Pipe Bending Tool. James Henry Blythe, Denver, Colo.

1,839,029. Radiator. Edward S. Horan and Charles Metzler, Jr., Carlstadt, N. J.

1,837,040. Pipe Bending Machine. Fred G. Gross, Cincinnati, Ohio.

1,837,763. Oil Burner. Ralph W. De Lancey, Winona, Minn.

LIQUID SOAP FIXTURE

Latest design push-in type. Pressing of button delivers measured quantity of soap. At no position of button can soap run in steady stream. Nickel-Plated or Chromium finish. Send for catalog.

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SHALLOW AND DEEP WELL WATER SYSTEMS
A complete line for every domestic water system need
GOULDS PUMPS, INC.
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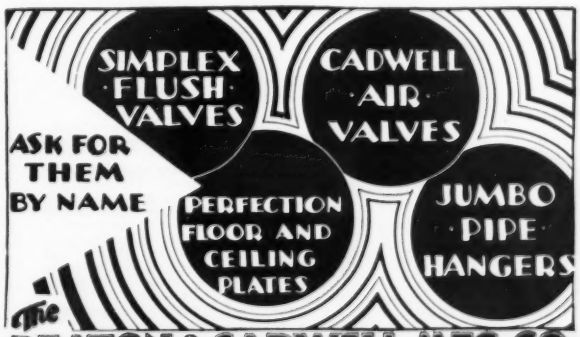

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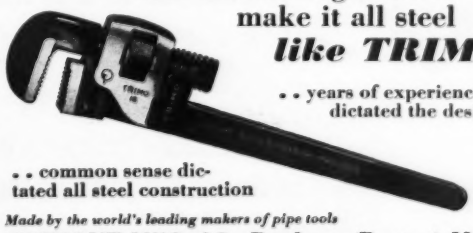
There is no surer way to make a pipe wrench safe and strong than to make it all steel *like TRIMO*



. . years of experience dictated the design

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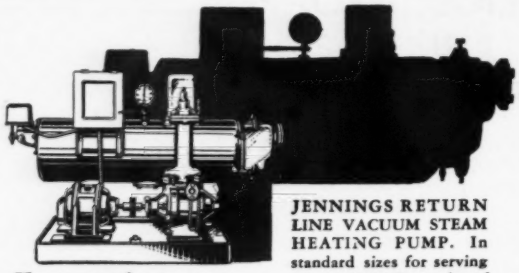
Made by the world's leading makers of pipe tools
TRIMONT MFG. CO., Roxbury (Boston), Mass.



Jennings Pumps

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Watts Hot Water House Heating Unit; Water Pressure Regulators; Diaphragm Relief Valves; Strainers, Boiler Water Feeders, etc., can be installed with the assurance of entire satisfaction. For back of this organization is a reputation for square dealing sustained over a period of 58 years. Write for catalog.

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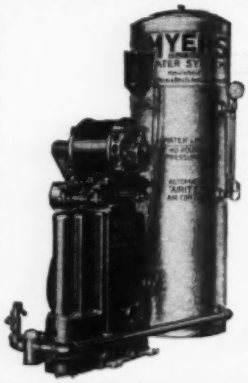

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Profitable water system business for progressive dealers—have it with Myers Water Systems, the complete line, refined and improved to simplify power water service and make it more dependable. Localities where we are not represented offer unlimited opportunities for active dealers. If you are not already selling and installing Myers Water Systems, start today by asking for complete information and catalog.

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Ashland, Ohio

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J&L
STEEL PIPE
BLACK and GALVANIZED

Full Standard Weight — Extra Strong
Double Extra Strong

JONES & LAUGHLIN STEEL CORPORATION
AMERICAN IRON AND STEEL WORKS
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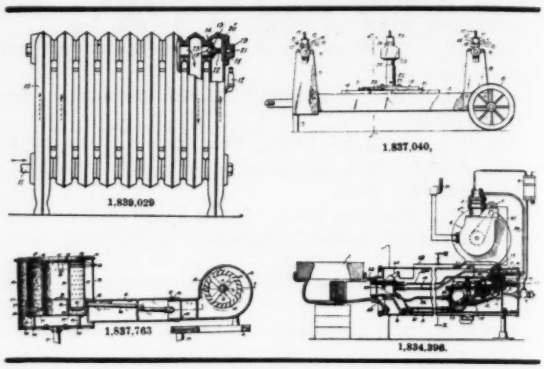
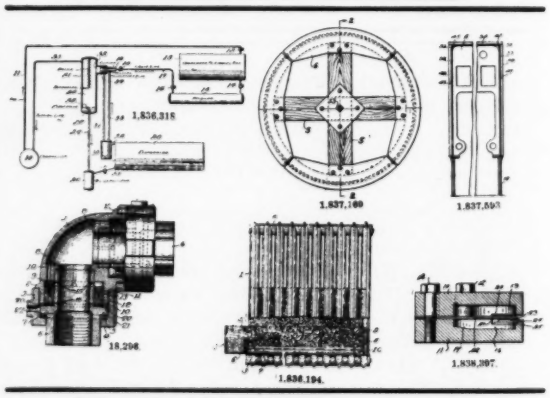


1,834,396. Automatic Oil Burner. John Good, Garden City, N. Y., assignor to Good Inventions Co., New York, N. Y., a Corporation of New York.

1,836,318. Refrigerating System. Norman H. Gay, Los Angeles, Calif.

1,837,169. Protector for Pipe Ends. Harry R. Mazurie, assignor to National Tube Co., Pittsburgh, Pa.

1,837,593. Boiler. William R. Stockwell, Michigan City, Ind., assignor to Weil-McLain Company, Michigan City, Ind., a corporation of Delaware.



18,296. Pipe Coupling. William S. Pierce, Franklin, Pa., assignor to Barco Brass & Joint Company, Chicago, Ill., a corporation of Illinois.

1,836,194. Humidifier. Samuel Silvers, Waterloo, Iowa.

1,838,397. Oil Burner. William O. Heck, Trona, Calif.

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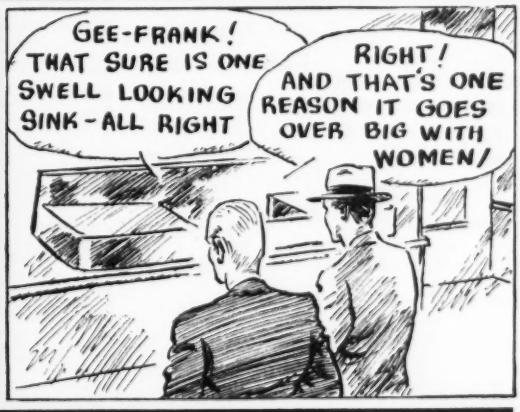

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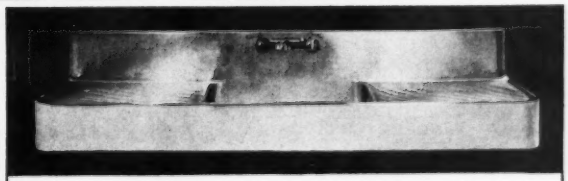

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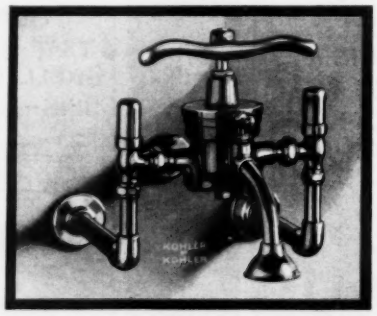

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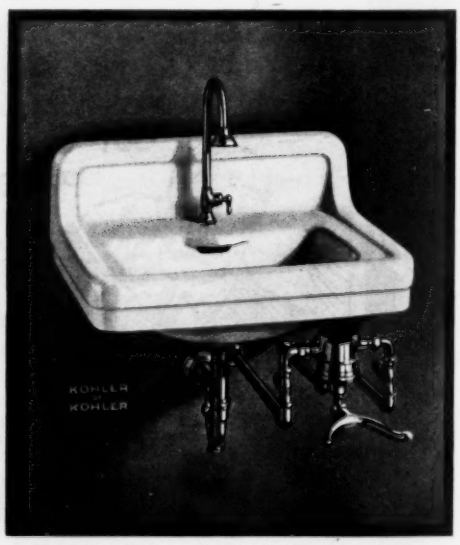

H-12818—*Kohler "Calvert" Vitreous China Lavatory with Knee Control Mixing Valve*